The Book of Games

The Book of Games

FEBRUARY 1983

Wondering just what to do with the micro you got for Christmas? At a loose and when it comes to game ideas? Never fear — the Book of Games is here!

The *Computer and Video Games* office is regularly deluged with programs from readers — more than enough to keep the magazine full for the next few centuries. So in order to bring you some of the best games that we've received — but which have not been published within the pages of C&VG — we decided to put them together in this bumper bundle of post-Christmas fun.

All the games have been tried and tested by our busy team of reviewers so any bugs should be few and far between. We also tried to keep the programs short and sweet with the exception of World Cup. We thought it was worth giving more space to. It's a version of the game first published for the Sharp in our June issue — converted for the BBC machine. It proved popular with Sharp owners — now BBC fans will get a chance to have a crack at the big match.

CONTENTS

DRACULA

BY STUART EARL

RUNS ON A ZX81 IN 16K

Listen to the children of the night . . . how sweet they sound. Ahh, there you are my dearrrrs. We must return to our resting place in Castle Dracula.

But look! There's the priest again. He thinks he'll finish us this time. But we'll defeat him yet!

In this charming resurrection of the Dracula story you play the evil count who is returning to his castle after a night out. You must evade the priest and avoid the garlic to reach your castle before sunrise which will spell your doom.

The program includes full instructions and has a high score feature which allows players to enter their names.

```
   5 LET N=0
  10 LET Q=0
     NEXT
     PRINT AT 0,27;
     PRINT AT 1,28;
     PRINT AT X,Y TO S
     ...
  50 LET X=INT (RND*10)+1
     LET Y=INT (RND*20)+1
     LET N=N
     LET X=INT (RND*20)+1
     LET Y=INT (RND*24)+1
     LET X=INT (RND*20)+1
     LET Y=INT (RND*24)+1
     LET Z=INT (RND*20)+1
     PRINT AT X,Y;
     PRINT AT X,Y;
     PRINT AT X,Y;
     PRINT AT X,Y;

     IF INKEY$="7" THEN LET O$=
     IF INKEY$="Q" THEN LET D$=
     LET C=C+(INKEY$="6")-(INKEY$
     ="5")
     LET D=D+(INKEY$="8")-(INKEY$
     ="7")
     PRINT AT C,D;D$
     IF A<C AND U=0 THEN LET A=A
     IF A>C AND U=0 THEN LET A=A
     IF B<D AND U=0 THEN LET B=B
     IF B>D AND U=0 THEN LET B=B
     PRINT AT A,B;"*"
     IF C=R AND D=Q THEN GOTO 10
     PRINT AT C,D;
     IF A=C AND B=D THEN LET A=0
     IF A=C AND B=D THEN LET B=0
     IF (C=X AND D=Y) THEN LET A=
     IF (C=X AND D=Y) THEN LET B=
     IF (C=X AND D=Y) GOTO 820
     ... IF (C=E
```

```
     AND D+1=Y) OR (C=1 AND D+1=J) OR
     (C=R AND D+1=J) OR (C=M AND D+1
     =N) THEN GOTO 1000
     AND B+1=Y) OR (C=1 AND D+1
     AND B+1=V) OR (R=1 AND B+1=Y) OR (A=R
     AND B+1=V) OR (R=1 AND B+1=Y)
     AND B+1=V) OR (R=1 AND B+1=N
     ) THEN LET U=1
 330 LET U=1
     IF A=INT (RND*7)+24
 340 IF B=INT (RND*7)+24
 350 IF C=M AND H=0
 500 IF Q=I=0 THEN GOTO 1000
 550 IF Q=0 AND 0+1=G+1 AND Z=2
     PRINT AT 0,0;T; AT 0,10;"HIG
 665 PRINT AT X,Y;
 670 IF INX=2 THEN LET T=
     IF X=2 THEN LET T=T-2
 680 IF X=2 THEN GOTO 1000
     IF X=2 AND D=27 THEN GOTO 2

     GOTO 250
1000 PRINT "    YOU ARE DEAD. SCORE=
     ";T:
1001 IF 100=700 THEN PRINT "NAME
1000 IF 100=N$6 THEN INPUT N$
1010 IF 100=N$6 THEN PRINT N$;
     IF 100=100 THEN LET 0=1001
1100 PRINT "ANOTHER G? (Y...
1200 IF INKEY$="Y" THEN GOTO 1000
     ...
     CLS
     GOTO
     PRINT "WELL DONE YOU HAVE
     REACHED THE CASTLE"
2000 IF C LETTERS THEN PRINT "NAME
2050 PRINT "ANOTHER G? "NAME 1
2070 IF 100=700 THEN INPUT N$
2100 IF 100=15 THEN GOTO 2050
2800 PRINT 1100 THEN LET 0=T+2

7010 PRINT "           DRACULA BY S.
     EARL"
7015 PRINT "
7020 PRINT "5=LEFT          7=RIGHT
                            8=DOWN"
7030 PRINT "DRACULA   YOU TAKE THE ROLE O
7040 PRINT "F DRACULA. YOU HAVE GOT
     2 SEC
     ONDS TO GET YOUR CASTLE X SEC
     AS THE G   THE VILLAGERS HAVE B
     AS PITS   YOU MUST LURE THE P
     YOU GROO  WHICH IS OUT TO GET
     YOU. STOP  IF YOU ARE SUCCESSFU
     DRAC       YOU ARE
     YOU ARE   IF YOU FALL IN A PIT
     THE PRI   DEAD. IF YOU PRESS YO
     TURN IN   A BAT WIPE ONCE AGAIN
     IN A PIT  BEFORE DAYLIGHT GOE
     THE PRI   YOU ARE A BAT
     THE TWICE AS  QUICK. PRESSING
     AND YOU BACK.   IF DAYLIGHT BREAKS
     YOU ARE DEAD."
7080 PRINT "       IF YOU GET TO THE D
     OOR WATCH  OUT FOR THE SWINGING
     GARLIC."
9000 PRINT "PRESS N/L"
9010 INPUT N$
9020 RUN
9100 SAVE "DRACULA"
9200 GOTO 7000
```

3

WORDFIND

```
5 OPEN #1,4,0,"K:"
10 DIM ANSWERS(20),BUESS$(1),ALPHABETS(2
6),USER$(20),CLUES(15)
20 GOTO 500
30 GRAPHICS 7
35 COLOR 3
40 IF X=1 THEN PLOT 20,79:DRAWTO 20,20
42 IF X>2 THEN PLOT 10,79:DRAWTO 20,20
DRAWTO 20,20
44 IF X>3 THEN
46 IF X>4 THEN COLOR 1:PLOT 30,30:DRAWTO 30,20
50 IF X>5 THEN COLOR 3:PLOT 30,30:DRAWTO 40,30
46 IF X>4 THEN COLOR 1:PLOT 30,20:DRAWTO 30,30
50 IF X>5 THEN COLOR 3:PLOT 30,30:DRAWTO 40,30
55 FOR I=1 TO 35:COLOR 3:READ A,B:PLOT A,B:
NEXT I:RESTORE
60 DATA 63,26,64,26,65,26,66,26,67,26,62
,27,63,27,64,27,65,27,66,27,67,27,68,27
,62,28,63,28,65,28,67,28,68,28
70 DATA 62,29,63,29,64,29,66,29,67,29,68
,29,62,30,63,30,64,30,65,30,66,30,67,30,
68,30,63,31,64,31,65,31,66,31
80 DATA 66,32
90 IF X=4 THEN COLOR 2 THEN Z=6I TO 69:Y
OR J=34 TO 44:PLOT I,J:NEXT J:NEXT I
100 IF X>=7 THEN COLOR 1:PLOT 60,34:DRAW
TO 57,39:DRAWTO 57,46:PLOT 60,34:DRAWTO
58,39:DRAWTO 57,58,46
110 IF X>=8 THEN COLOR 1:PLOT 70,34:DRAW
TO 73,39:DRAWTO 73,46:PLOT 70,33:DRAWTO
72,39:DRAWTO 72,46
120 IF X>=9 THEN COLOR 2:PLOT 61,45:DRAW
TO 69,45:FOR I=61 TO 64:COLOR 2:PLOT I,4
6:DRAWTO I,57:NEXT I
125 IF X>=9 THEN COLOR 2:PLOT 62,58:DRAW
TO 63,58:PLOT 61,59:DRAWTO 64,59
130 IF X>=9 THEN COLOR 2:PLOT 65,46:DRAW
TO 65,58:PLOT 66 TO 69:PLOT 1,46:DRAWTO
1,57:NEXT I
135 IF X>=10 THEN COLOR 1:PLOT 67,58:PLOT
68,58:PLOT 66,59:DRAWTO 69,59
140 IF X<10 THEN 490
145 FOR T=1 TO 750:NEXT T
150 GRAPHICS 1:#1:COLOR 3:SETCOLOR 2,0,0
:POSITION 4,0:#6:? #6:"THE ANSWER WAS ":?
#6:? #6:ANSWER$
160 FOR I=1 TO 5:FOR J=1 TO 200:SOUND 0,
J,8,10:NEXT J:SOUND 0,0,0,0:NEXT I
180 RUN
490 FOR T=1 TO 500+50*X:NEXT T:SOUND 0,0
,0,0:GOTO 500
500 ? "WORDFIND":? :? "Do yo
u want instructions (Y or N) ?":GET #1,K
510 IF CHR$(K)="Y" THEN GOSUB 1000
515 ANSWERS=""
520 ? :? :? "INPUT YOUR WORDS":? :?
(not more than 20 letters).":? :?" "
522 FOR I=1 TO 20:GET #1,ANSWERS(I,I
):? CHR$(K):IF CHR$(K)="a" THEN ANSWERS(I,I)
=" ":GOTO 527
```

```
524 NEXT I
525 IF LEN(ANSWERS)>20 THEN 515
527 CLUES=""
530 ? :? :? "INPUT YOUR CLUE":? "(not more
than 15 letters)":INPUT CLUE
535 IF LEN(CLUES)>15 THEN CLUE$="":GOTO
527
540 USER$="":FOR I=1 TO LEN(ANSWER$):USE
R$(I,I)=" ":IF ANSWERS(I,I)=CHR$(32) THE
N USER$(I,I)=CHR$(32)
545 IF ASC(ANSWER$(I,I))<65 OR ASC(ANSWE
R$(I,I))>90 THEN ANSWER$(I,I)=ANSWER$(I,I)
600 GRAPHICS 2:COLOR 1
610 POSITION 0,3:? #6;USER$
620 POSITION 0,9:COLOR 2:? #6:"CLUE:":? "CL
UE$
630 ? :? "LETTERS GUESS ":? "ALPHABET$:? "I
NPUT YOUR GUESS":GET #1,GUESS$:GUESS$=CHR$(K)
:ALPHABET$(Y,Y)=GUESS$:Y=Y+1
637 IF Y>=26 THEN Y=26
640 FOR I=1 TO LEN(ANSWER$):IF GUESS$=AN
SWER$(I,I) THEN USER$(I,I)=GUESS$:POSITION
POSITION I-1,3:? #6:GUESS$:F=1
650 IF F=1 THEN GOTO 665
660 NEXT I:GOTO 670
665 FOR J=1 TO 200:SOUND 0,50,10,14:NEXT
J:SOUND 0,0,0,0:F=0:GOTO 680
670 IF USER$=ANSWER$ THEN GOTO 900
680 IF Z=0 THEN X=X+1:SOUND 0,200,4,12:G
OTO 30
685 ? :?
690 Z=0
700 GOTO 630
900 ? "CORRECT"
910 GRAPHICS 2+16:FOR T=1 TO 4:FOR S=1 T
O 15:SETCOLOR 4,S,12:?? POSITION 0,3:? #6
:"CORRECT":SOUND 0,200,S,10,0
915 SETCOLOR 4,S,12:? POSITION 0,6:? #6:
ANSWER$:SOUND 1,200,7,10,10
920 FOR TIME=1 TO 100:NEXT
930 NEXT S:NEXT T
940 SOUND 0,0,0,0:SOUND 1,0,0,0:RUN
1000 ? :? "The object of WORDFIND is to
guess the":? "hidden word entered by you
r opponent":?
1010 ? :? "Your opponent must enter the
word(s) of his choice letter by letter
and , press 'a' to end it.":?
1020 ? :? "You must guess letters in tur
n. To do this simply type the letter of
your"
1025 ? "choice."
1030 ? :? "The computer will do the rest
.":?
1035 ? :? "PRESS C TO CONTINUE":GET #1,K
:IF CHR$(K)="C" THEN RETURN
1040 GOTO 1035
```

The object of Word Find is to guess the hidden word entered into the computer's memory by your opponent. You simply have to type in your choice of letters which will gradually reveal the secret word.

There is a catch however, just like the pen and paper game Hangman an unfortunate character is gradually progressing toward his doom each time you make a wrong guess.

Will you be able to beat your opponent — and the Hangman — before the poor little chap starts to dangle?

The 'n' character is a clear screen command and it appears in lines 500, 520 and 530. The 'c' in line 1035 should be typed in inverse video.

4

INVADERS

BY ANDREW FILBY

RUNS ON A SPECTRUM IN 16K

Those nasty aliens are back again. And they are as dangerous as ever.

You can defend yourself using your laser base. But you can only fire three times at any one alien. The good news is that you can fire their missiles with your laser. The bad news is that those missiles will home in on you.

You may also use the life saving hyperspace button – but only six times. And each time you press the panic button your score decreases.

The lower the alien is before you blast him the more you'll score – but you only have five lives to play with, so don't let them get too close! Use 'm' to move right, 'n' to move left, and 'a' to fire.

```
   2 LET uy=0: LET li=0: LET lo=
0: GO SUB 1000: PAPER 0: LET l=0
: CLS : INK 2: BORDER
0
   3 DATA 0,0,BIN 00110110,BIN 0
0110110,BIN 00011110,BIN 0001111
0,BIN 00011110,BIN 00111100
   4 DATA BIN 10001001,BIN 00100
100,BIN 01001010,BIN 01011010,BIN
10100000,BIN 00001000,BIN 00
100001
   5 DATA BIN 00011000,BIN 00111
100,BIN 01111110,BIN 11111111,BIN
11111111,BIN 11111111,BIN 1100
0011,BIN 11000011
   6 DATA BIN 00011000,BIN 00111
100,BIN 01111110,BIN 11111111,BIN
11011011,BIN 11111111,BIN 0011
1100,BIN 01100110
   7 LET sc=0: LET rt=0: LET li=
0
   8 PRINT "SCORE: ";sc
   9 LET li=0
  10 LET b=10
  20 FOR f=0 TO 7: READ a: POKE
USR CHR$ (n)+f,a: NEXT f
  28 PRINT AT 0,15: "A": TAB 20 ;
: TAB 20 ;"
  30 LET a=(RND*30)+1
  35 FOR f=0 TO 7
  40 PRINT AT f,a;"
  50 PRINT AT f,0;"
  60 IF sc>l THEN LET sc=0
  70 PRINT AT k,u;"
  79 IF INKEY$="a" THEN GO TO 20
  81 IF RND*90 THEN GO TO 110
  60 LET uy=u: LET lo=l
  62 FOR s=INT (RND*21) TO 21
  65 PRINT AT f,u;"
  66 IF SCREEN$ (f+1,uy)<>" " TH
EN GO TO 50
  69 PRINT AT s,uy;"
  67 IF luy THEN LET uy=uy-1
  71 IF luy THEN LET uy=uy+1
  73 IF INKEY$="n" AND rt<=3 THE
N GO TO 300
  75 IF lo=0 THEN
  78 PRINT AT k,u;"
  79 PRINT AT 21,t;"
  80 IF INKEY$="m" THEN LET l=t+
1,0
  90 IF INKEY$="n" THEN LET t=t-
1
 100 IF t>=31 THEN LET t=33
 110 IF t<0 THEN LET t=0
 190 NEXT f
 191 LET sc=0
 195 NEXT f
 200 STOP
 201 PLOT 8+l*3,3
 202 IF t>3 AND lo=1 THEN RETUR
N
 203 IF t>3 THEN GO TO 61
 205 BEEP .1,s+1
 210 DRAW 0,8s: (8.33333333*k)
 211 DRAW OVER 1,0,8s: (8.33333
33k): FOR f=-10 TO 10
 255 IF SCREEN$ (k,l)<>" " THEN
GO TO 300
 261 IF (uy AND lo=1 THEN RETU
 300 PRINT AT k,l;"
 310 FOR f=1 TO 9: BEEP .02,f: N
EXT
 315 LET sc=sc+ INT (100/b)
 325 PRINT AT k,l-1;"
 330 GO TO 191
 370 PRINT ,AT 0,15;"
 410 INK 7
 440 PRINT AT 20,l;" ": AT 21,l-1
 450 FOR f=-10 TO 10
 459 BEEP .05,f
 460 BORDER RND*6+1
 465 NEXT f
 466 PRINT AT k,u;"
```

```
 460 PRINT AT 20,l;" ": AT 21,l-1
 465 INK 2
 470 LET li=l-1
 480 IF li=-1 THEN GO TO 600
 490 GO TO 191
 500 PRINT AT 18,0; INVERSE 1;"H
YPERSPACE": INVERSE 0
 505 FOR f=10 TO 0 STEP -1
 510 PRINT AT 21,l;" ": AT k,u;
 519 BORDER RND*6+1: BEEP .02,f
 520 BEEP .1,-10
 535 LET t=RND*31
 536 LET sc=sc-INT (100/k)*2
 537 PRINT AT 10,5;"
 540 GO TO 191
 800 PRINT AT 10,0; INVERSE 1;"
YOU SCORED ";sc;
 801 IF sc>hs THEN PRINT "YOU HA
VE beaten ";hs;"'s HIGH SCORE OF
 "; INPUT "please input name"
 820 PRINT AT 3,5; INVERSE 1;"p
ress 'a' to play again", INVERSE
 0
 811 RESTORE
 813 PAPER 5: BORDER 1
 815 IF sc>hs THEN LET hs=sc
 820 IF INKEY$<>"a" THEN GO TO
 820: IF INKEY$="a" THEN CLS : GO
 TO
 850 GO TO 820
 855 GO TO 820
1000 PAPER 0: CLS : INK 7
1001 PAPER 4: INK 4: INVERSE 1;"SPA
CE ATTACK --@-- A.FILBY: INVERSE
 0
1010 PRINT "The object of the
game is to shoot down as many sp
ace ships (as possible from
your space ship."
1020 PRINT "At random the alien
s will fire at you, their bombs
 will home in on you. If you go
 on target you can go into
HYPERSPACE to be safe but it wil
l decrease your score. The lo
wer an alien is the more points
 it is worth. You have 5 lives
and you can move from side to s
ide at ..5 times as fast
as an alien.
1021 PRINT "You can use HYPERSPAC
E 6 times, but you can only fire
 at any alien 3 times once your
laser can stop the bombs."
1040 PRINT "Use 'm' to move rig
ht to move left and 'n' to far
 t"
1050 PRINT "v" puts you into Hy
perspace"
1060 INPUT "press 'enter' to sta
rt ",r$
1100 RETURN
```

5

MASTERMIND

Can you crack the hidden code? If you can you'll be really worthy of the title of C&VG mastermind!

The program plays the part of the code-maker in the popular game of Mastermind. One of its strongest features is the use of graphics, both in the initial display and in the depiction of the Mastermind board.

The idea behind the game: for those unfamiliar with it, is that a code is set up, which has to be discovered in as few attempts as possible. The difficulty factor may be altered in two ways.

Firstly the number letters in use may be varied. Secondly the number of positions in the code may be varied. In this game the first option is the one used to provide different levels of play.

On RUNning the program there is an initial graphic title frame (10-90, 2390-2410). Then there is a brief set of instructions (100-180).

Then the level of play can be entered by the user typing 1,2 or 3.

```
5 CLS
7 REM GRAPHIC DISPLAY
10 FORX=1TO127:SET(X,0):SET(X,47):NEXTX
20 FORX=0TO127:Y=0:SET(X,Y):Y=47:SET(X,Y):NEXTX
30 FORY=0TO47:X=0:SET(X,Y):X=127:SET(X,Y):NEXTY
40 FORY=0TO22:READX:READY:SET(X,Y):NEXTY
60 FRINT@984,"MASTER MIND   by Daniel Bishop, Copyright, 1982.";
90 FORX=1TO1000:NEXTX
98 CLS
100 REM   INSTRUCTIONS
110 PRINT"Master Mind  a Game of logic....";
120 PRINT"The computer sets up randomly a four letter code. The object of the game is to deduce by trial and error, the letters and theirpositions in the code."
130 PRINT"Level 1   :  A,B,C,D,E,F,G,H                          Level
II   :  A,B,C,D,E,I,J,K";
140 PRINT"Your score is shown thus:"CHR$(143)"correct letter, correct position"
160 PRINT"                         "CHR$(127)"correct letter, wrong position."
180 PRINT"Note: the positions of the scoring pegs bear no relation to the positions of the letters in the code."
185 REM   SET UP CODE
190 OKEYSTRK:Y
196 PRINT:PRINT"Do you wish to play at Level I (1); Level II (2); Level III (3)?"
208 L$=INKEY$:IF L$="" THEN 208
210 IF L$="1" THEN L$=8
220 IF L$="2" THEN L$=10
230 IF L$="3" THEN L$=18
240 FOR Z=1 TO 4
250 R=RND(L):IFR=1THENK(Z)="A"
260 IFR=2THENK(Z)="B"
270 IFR=3THENK(Z)="C"
280 IFR=4THENK(Z)="D"
290 IFR=5THENK(Z)="E"
300 IFR=6THENK(Z)="F"
310 IFR=7THENK(Z)="G"
320 IFR=8THENK(Z)="H"
330 IFR=9THENK(Z)="I"
340 IFR=10THENK(Z)="J"
350 NEXTZ
355 REM DRAW BOARD
360 CLS
500 FOR X=4TO39
510 SET(X,1):SET(X,46):NEXTX
515 FORX=4TO39
520 SET(X,23):SET(X,28):SET(X,41):NEXTX
530 NEXTX
```

```
680 FRINT@61,"*";
685 FRINT@61,"a";
690 IFL=10THEN PRINT@127,"I,J,K";
698 PRINT@127,"A to H";
700 FOR Z=1 TO 9
710 V=Z
```

```
800 IF TRS THEN 740
810 IF L$=8 THEN 850
850 IFA$="A"ANDJ$ ... "A"ANDJ$  "C"ANDJ$  "D"ANDJ$
"E"ANDJ$  "F"ANDJ$
860 IFA$="A"ANDJ$  "A"THEN 780 ELSE 870
870 IFA$="A"ANDJ$  "B"ANDJ$  "C"ANDJ$  "B"ANDJ$  "C"ANDJ$  "D"ANDJ$
"H"THEN 780 ELSE 870
880 IFA$="A"ANDJ$  "B"ANDJ$  "C"ANDJ$  "D"ANDJ$  ...
878 780
```

```
          REM DATA FOR GRAPHICS DISPLAY *
2358 DATAA9,21,5,21:a.28:a22:a26:a24:a25:a.26;a,27,4:,7,2,28,2,28,1,28,2
1,28,1,28,2,21:a,21:a,22:a,23:a,25:a,26;a,27,6:a,6,16,18,16,18,16,18,1
,29,7,24,7,23:a,22:a,21,21:a,21:a,18:a,19:a,18:a,19:a,18:a,22:a,16:a,23
,21,15,22,19,23,19,24,19,25,16,21,17,21,18,17,18,19,4,7,2
2358 DATAA9,21,26,15,24,17,25,16,24,19,26:a,29:a,21:a,23:a,22:a,23:a,23:a,22:a,23
4,21:a,27,29:a,28:a,28:a,18:a,28:a,18:a,29:a,33:a,33:a,34:a
8,34:a,19,18:a,18:a,25:a,24:a,25:a,18:a,27:a,18:a,16:a,16:a,17:a,42:a,18:a,19:a,49:a,19
8,34:a,19,18:a,25:a,24:a,26:a,27:a,19:a,38:a,18:a,39:a,19
2358 DATA47,17,44,16,45,15,44,16,46,15,47,18,57,58,11,48,18,58,7,17,44,17,47,18,5
8,49,18,58,16,51,15,52,15,53,55,54,18,51,14,58,17,14,47,58,13,59,12,59,15,59,4,58
9,17,58,17,57,17,52,17,53,17,45,52,16,54,15,59,17,17,58
15,58
2358 DATA48,48,17,64,17,62,17,63,17,64,11,65,11,66,11,6,11,68,11,69,18,69,51,31,49,13
3,48,42,48,12,58,12,58,11,52,11,59,29,59,21,58,28,58,29,58,29,59,49,52,59,28,59,31,49,59,13
5,41,26,64,27,59,28,58,29,57,29,56,59,19,16,11,18,18,57,49,59,49,11
48,31,47
2358 DATA61,62,24,63,23,64,67,65,19,66,69,26,67,68,68,29,69,29,69,29,69,29,79,49,71,48,47,47
8,17,21,76,72,27,52,17,54,24,74,25,76,24,76,25,78,28,78,29,31,98,33
82,22
2488 DATA82,23,82,24,82,25,83,25,84,74,85,23,86,79,87,27,88,27,27,98,13,98,13,98,27
,89,27,88,27,11,89,19,83,19,84,16,185,18,186,18,197,18,188,18,19,99
```


REACTION

BY J. STANTON & J. WILKINSON

RUNS ON AN UNEXPANDED VIC-20

Want to hone your reactions for those games of Defender, Frogger – and of course, Pengo – down at your local arcade? Well here's the game that will test your mind to eye powers to the full.

The rules are simple. All you have to do is wait for a dot to appear on the screen, a noise from your computer and the screen colour to change. As soon as this happens you must the space bar.

Your reaction time is flashed up, and there is also a high score feature which you set with your first attempt.

Further attempts receive compliments from your computer and a suitable jingle. Instructions are included in the program which uses the Vic's sound, visual, and colour facilities to the full and should provide a good test to skill for any arcade fan willing to take a break from blasting multi-coloured aliens!

```
1 V=25 POKE36878,6 PRINTCHR$(14) FOKE36879 27
2 GOTO5000
3 O=0
4 GOTO4000
5 PRINT"◇"
6 R=INT(RND(TI)*800)
7 S=INT(RND(TI)*400)+100
8 PRINT"WHERE IS IT ???..." FORA=1TO300 NEXTA POKE36879,250
9 FORL=1TO400 IFPEEK(197)=32THENGOT06000 NEXTL PRINT"◇"
20 POKE7680+R,160
22 POKE36878,200
30 POKES8400+S,8
32 FORA=1TO50 NEXTA POKES6878,0
35 F=TI
40 PRINT"◇"
50 IFPEEK(197)=32THENGOT0105
60 GOTO50
105 PRINT"◆◇◇◇◇◇REACTION TIME "
106 Y=TI-F '60
110 PRINT"◆◇◇◇◇" Y "SEC."
120 IFO=RANDX=YTHENGOSUB1000
126 IFX>YTHEN X=Y
130 PRINT"◆◇◇◇◇BEST TIME "
135 PRINT"◆◇◇◇◇" X "SEC."
140 FORI=1TO2000 POKE36879,27 NEXTI
```

8

```
150 X=0 O=1 GOTO5
1000 POKE36876,225
1005 PRINT"@ JELL"
1006 FORA=1TO100 NEXTA
1010 POKE36876,210
1015 FORA=1TO75 NEXTA
1016 POKE36876,0
1020 POKE36876,210
1021 PPRINT" TONE"
1025 FORA=1TO100 NEXTA
1030 POKE36876,215
1033 PRINT" Y"
1035 FORA=1TO100 NEXTA
1040 POKE36876,210
1043 PRINT" FLD"
```

```
1045 FORA=1TO200 NEXTA
1050 POKE36876,220
1053 PRINT" ON."
1055 FORA=1TO125 NEXTA
1056 POKE36876,0
1060 POKE36876,222
1063 PRINT" JELL"
1065 FORA=1TO200 NEXTA
1070 PRINT" TONE"
1120 POKE36876,0
1130 RETURN
2000 POKE36875,128
2005 PRINT"@ TAPE"
2010 FORA=1TO400 NEXTA
2020 POKE36875,0
2100 POKE36874,128
```

```
2105 PRINT"@ LUCK"
2110 FORA=1TO400 NEXTA
2111 PRINT"@ HUM"
2115 POKE36875,128
2116 FORA=1TO400 NEXTA
2220 POKE36875,0 POKE36874,0 RETURN
4000 POKE36879,249 PRINT"@@@@REACTION!"
4010 PRINT"@@@@@"
4020 PRINT"@ A CIRCLE JILL. *FEAR"
4030 PRINT"@ ON THE @CREEN AND *"
4040 PRINT"@ OISE JILL WOUND..."
4050 PRINT"@ OU UST HIT THE "
4060 PRINT"@ @PACE@ @ARB,"
4070 PRINT"@ @ -AST "
4080 PRINT"@ @ OU AN...,"
4200 PRINT"@@@@@ OOD LUCK"
4500 FORA=1TO7000 NEXTR
4800 GOTO5
5000 PRINT"@@@@@@@@NSTRUCTIONS?"
5100 PRINT"@@@@@@@@@(Y/N)"
5200 GETA$
5300 IFA$="Y"THENGOTO4
5310 IFA$="N"THEN5
5350 GOTO5200
6000 PRINT"@@@OU CHEATED!!@@@@@@@@TRY AGAIN"
6050 FORA=1TO2000 NEXTA PRINT"@"
6100 GOTO5
```

PYRAMID OF SECRETS

BY STEVE HOLLOWAY

RUNS ON A TRS-80 IN 16K

The builders of those ancient pyramids were crafty people. They used every devious means available to them to protect the treasure of the Pharaoh buried deep with the vaults of their awesome creation.

Trap doors, dead ends, false passageways – these ancient architects employed all the tricks of their trade to make sure no-one could rob the tombs laid with gold and glittering jewels.

Will you dare to enter the pyramid of secrets and search for the treasures which are hidden there? Will you manage to escape once you have found the glittering prize? Or will you gradually starve to death – trapped within the stone corridors of this ancient maze . . .

This is a game for one player. You will be presented with a 3D representation of a maze in which you must move around in.

There are six levels to explore in search of the treasure. But beware of trap doors – and walls that may look solid. The trap doors will drop you back to a lower level – and the entrance to the pyramid is one of those moving blocks of stone and may be difficult to find again. There is also a time limit on the game – after it has run out you are presumed dead.

Program notes:

10-40: Input routine and timer advance
100-200: Help routine: gives player's direction, level, treasure and indicates if a moveable wall is nearby
500-550: Solid wall message and open wall routine
1020-1050: Move player forward.
3000-3020: Routine for finding walls present and whether stairs, trapdoor, treasure.

```
5 GOTO 5000
10 GOSUB3030:PRINT@0,"WHICH WAY? (F, L, R, H)  ";:PRINT@48,"TIME LEFT -";
20 I$=INKEY$:PRINT@25,I$;:T=T+1:IFT=10000THENCLS:PRINT@520,"SORRY - BUT YOU RAN
OUT OF TIME AND STARVED TO DEATH.":END
30 IFI$="F"GOTO500
40 IFI$="L"THEND=D-1:IFD<0THEND=4:GOTO10ELSE10
50 IFI$="R"THEND=D+1:IFD>4THEND=0:GOTO10ELSE10
60 IFI$="H"THENGOSUB100:GOTO10
70 PRINT@53,100-INT(T/100);
80 GOTO10
100 REM HELP ROUTINE
110 CLS:PRINTTAB(10)"YOU ARE ON LEVEL ";LV:PRINTTAB(10)"(THE EXIT IS ON LEVEL 3
)":PRINT"YOU HAVE ";SC;" POUNDS OF TREASURE"
120 PRINTTAB(10)"YOU ARE FACING ";:ON D GOTO130, 140, 150, 160
130 PRINT"NORTH":GOTO170
140 PRINT"EAST":GOTO170
150 PRINT"SOUTH":GOTO170
160 PRINT"WEST":GOTO170
170 PRINT"(THE EXIT IS ON THE EAST SIDE OF THE PYRAMID)"
180 IF A(X,Y,LV) 51)PRINT"THERE IS A MOVEABLE WALL NEXT TO YOUR PRESENT POSITION
"
190 PRINT:PRINT:PRINT"PRESS ANY KEY TO CONTINUE PLAY (NOTE TIME IS SLIPPING BY)"
200 PRINT@48,"TIME LEFT -";100-INT(T/100);:T=T+5:I$=INKEY$:IFI$=""THEN 200 ELSE
RETURN
500 A=X+Y:GOSUB3000:IFFW<>0THEN1020
510 IFFW=0ANDFW=0THENPRINT@530,"THIS IS A SOLID WALL '''":PRINT:FORI=1TO100:NEXTI:PRI
NT@530,"                  ";:GOTO1020
520 PRINT@530,"THE WALL OPENS -";:FORI=179TO150STEP-1:PRINT#I, V0$;:FORJ=1TO50:NE
XTJ:NEXTI
530 CLS:PRINT@530,"AND CLOSES BEHIND YOU....":FORI=1TO1000:NEXT
1020 IFD=1THENY=Y-1:GOTO10
1030 IFD=2THENX=X+1:GOTO10
1040 IFD=3THENY=Y+1:GOTO10
1050 X=X-1:GOTO10
1060 IFD=1THENB=B-1:RETURN
1070 IFD=2THENA=A+1:RETURN
1080 IFD=3THENB=B+1:RETURN
```

10

```
1090 R=A-1:RETURN
3000 NW=A(A,B,LV)AND2:WW=A(A,B,LV)AND1:EW=A(A,B,LV)AND4:SW=A(A,B,LV)AND8:FW=NW:W
W=EW:LW=WW:SW=SW:ST=A(A,B,LV)AND96:TR=A(A,B,LV)AND16:PI=A(A,B,LV)AND128:IFD=1THE
N3020
3010 FORI=1TOD-1:Z=FW:FW=RW:RW=NW:NW=LW:LW=Z:NEXT:
3020 F=A(X,Y,LV)AND(FW*512):RETURN
3030 IFA(X,Y,LV)=769THENSC=SC-X*B=Y:GOSUB3000:IFPI)0RANDRND(9)=4THENGOSUB5600
:GOTO10
3040 IFST=64THENCLS:LV=LV-1:PRINT@520,"GOING UP STAIRS":GOSUB7050:GOTO1020:ELSEIF
ST=32THENCLS:LV=LV+1:PRINT@520,"GOING DOWNSTAIRS":GOSUB7050:GOTO1020
3050 IFTR 0THENSC=SC+RND(*10)*1:CLS:PRINT@520,"YOU HAVE COLLECTED SOME MORE RARE TREA
SURES,
YOU NOW HAVE:";SC;" POUNDS":A(X,Y,LV)=A(X,Y,LV)-16:GOSUB7050:GOTO10
3060 CLS:PRINT@141,V0$;:PRINT@179,V0$;:IFLW 0PRINT@843,W1$;:PRINT@970,X8$;:ELSEPRI
NT@128,V3$;:PRINT@897,X4$;
3070 IFNW 0PRINT@18,S2$;:ELSEPRINT@1@0,W3$;:PRINT@948,W4$;
3080 IFWW 0PRINT@142,W1$;:RETURN
3090 GOSUB1060:GOSUB3000
3100 IFST=32THENPRINT@540,X1$;:RETURNELSEIFST=64PRINT@540,S2$;:RETURN
3110 IFLW 0PRINT@910,X8$;:RETURN:ELSEPRINT@334,W7$;:PRINT@718,W8$;
3120 IFRW 0PRINT@299,X6$;:ELSEPRINT@811,X7$;:PRINT@747,W6$;
3130 IFTR 0PRINT@861,TR$;
3150 PRINT@342,V1$;:PRINT@362,V1$;:IFWW 0THENPRINT@343,W5$;:PRINT@727,W6$;:RETUR
N
3160 GOSUB1060:GOSUB3000
3170 IFST=32THENPRINT@540,S1$;:RETURNELSEIFST=64PRINT@540,S2$;:RETURN
3180 IFLW 0PRINT@343,X9$;:PRINT@727,W4$;:ELSEPRINT@663,W8$;:PRINT@600,W9$;
3190 IFRW 0PRINT@84,CHR$(131);:PRINT@612,T5$;:PRINT@612,CHR$(176);CHR$(26);
CHR$(131);ELSEPRINT@484,CHR$(140);CHR$(140);:PRINT@612,CHR$(131);
3200 PRINT@410,V3$;:PRINT@422,V3$;:IFTR 0PRINT@733,TR$;
3210 PRINT@411,W9$;:PRINT@667,X9$;:RETURN
3220 GOSUB1060:GOSUB3000:IFST=32PRINT@540,S1$;:R
ETURN
3230 IFLW 0PRINT@411,CHR$(176);CHR$(26);CHR$(131);:PRINT@865,CHR$(131);CHR$(27;
CHR$(176);ELSEPRINT@75,CHR$(131);:PRINT@603,CHR$(140);CHR$(140);
3240 IFRW 0PRINT@84,CHR$(131);CHR$(27);:PRINT@612,T5$;:PRINT@612,CHR$(176);CHR$(26);
CHR$(131);ELSEPRINT@484,CHR$(140);CHR$(140);:PRINT@612,CHR$(131);
3260 PRINT@477,CHR$(188);CHR$(26);CHR$(26);VW$;CHR$(26);CHR$(26);CHR$(189);
CHR$(26);CHR$(189);CHR$(143);
3270 PRINT@478,STRING$(5,140);:PRINT@606,STRING$(5,140);:RETURNELSEIFPRINT@4
78,CHR$(176);CHR$(26);CHR$(26);CHR$(179);CHR$(27);CHR$(176);:PRINT@606,CHR$
(26),CHR$(131);:RETURN
4000 RETURN
5500 CLS:PRINT@520,"YOU ARE DEAD"  :PRINT"          TIME LEFT";32-INT(T/1000):
PRINT:PRINT"          TREASURE COLLECTED -";SC;"  POUNDS":IF SC)200 PRINT"    TRULY
EXCELLENT"  :ENDELSE PRINT"          YOU DID WELL TO ESCAPE":END
5600 CLS:PRINT"    YOU HAVE STEPPED ON A MOVABLE TRAPDOOR AND THE GROUND HAS OPEN
ED BENEATH YOU":PRINT:PRINT@"          ""FALLING""":FORJ=1TO30:NEXTJ:PRINT@ ,"
        "NEXT:LV=LV+1:RETU
RN
6000 CLEAR 900:DEFINTA-Z:DIMA(11,11,6):CLS:PRINT@282,"T H E":PRINT@406,"P Y R A
M I D":PRINT@532,"O F  S E C R E T 8"
6010 PRINT@500,"";:FORI=1TO8:PRINT"/","";:CHR$(27);CHR$(92);" ";CHR
$(26);:FORI=1TO8 :PRINTCHR$(92);NEXT:CHR$(32);CHR$(26);:NEXT:PRINT@640,STRING$(64,"-"
)
6020 PRINT@780,"WRITTEN BY STEVE HOLLOWAY,  FEB  1982":LV=5:A(6,5,1)=231:A(8,6,3)
=76$
6030 N1=7-LV:N2=12-N1:FORX=N1TON2:FORY=N1TON2:READA(X,Y,LV):NEXTY:NEXTX:LV=LV
-1:IFLV 0THEN6050
6040 W1=STRING$(57,131):W2=STRING$(37,176):W3=STRING$(12,131):W4=STRING$(12,
176):W5=CHR$(131)+CHR$(140)+CHR$(176):W6=STRING$(13,176):PRINT"P
RESS 'I' FOR INSTRUCTIONS OR ANY OTHER KEY TO CONTINUE"
6050 IN$=INKEY$:IFI$=""THENGOTO6050ELSEPRINT"JUST A MOMENT...":IF$="I"GOSUB8000
6060 V0$=CHR$(181)+CHR$(26):FOR I=1TO19:V0$=V0$+V$:NEXT:V1:XC$=CHR$(140)+CH
R$(176)+CHR$(26):XA$=CHR$(26)+XA$:V0$=CHR$(27)+XB$+CHR$(27)+CHR$(176)+CHR$(1
40)
6070 XE$=CHR$(140)+CHR$(131)+XD$+CHR$(27)+XB$+CHR$(27)+XE$+CHR$(26)+XA$+CHR$
(26)+XB$+CHR$(131)+CHR$(140)FOR I=1TO7:V1$=V1$+V$+W7$:NEXT:W7$=STRING$(8,131)W8$=STRIN
G$(18,131)W5$=STRING$(19,131)W5$=STRING$(19,176)
6080 S1$="STAIRS"+CHR$(26)+STRING$(5,24)+"DOWN":S2$="STAIRS"+CHR$(26)+STRING$(4,
26)+"TREE"
6090 V9$=STRING$(11,140)W3$=STRING$(3,140)V3$=CHR$(188)+CHR$(26)+CHR$(24)+V9$+V
$+V$+CHR$(143)X9$=CHR$(140)+CHR$(176)+CHR$(26)+CHR$(131)XH$=CHR$(140)+CHR$(13)
+CHR$(27)+CHR$(176)X0$=CHR$(131)+CHR$(24)+CHR$(27)+CHR$(140)
```

11

```
6100 XJ$=CHR$(176)+CHR$(26)+CHR$(131)+CHR$(160)
6110 FORI=1TO1:FORJ=1TO1:READA(I,J,6):NEXTJ:NEXTI
6120 PRINTTAB(8)"PRESS (F) TO OPEN ENTRANCE AND START EXPLORING"
5980 D=41X+9:Y=5:LV=190:GOTO:0
6990 I$=INKEY$:IF$="F"THENCLS:GOTO3200ELSE6990
7000 DATA3,5,1,5,5,5,9,3,9,2,13,2,5,5,9,14,64,10,3,13,2,9,3,8,3,12,2,12,1,7,8,10,10,2,5,8,3,29,10,6,12,14,10,1,14,2,5,12,3,1,9,10,6,1,8,3,1,12,10,10,2,23,14,10,32,10,2063,10,10,6,5,13,6,5,12,519,12,32
7010 DATA19,133,5,5,2053,13,32,32,3,5,9,515,5,12,3,8,7,12,10,64,9,10,6,5,5,4,5,8,6,1,5,13,7,5,8,11,2062,64,1,13,11,10,6,517,5,4,5,140,14
7020 DATA1,1,133,13,10,6,9,64,32,6,137,2,133,9,3,12,2,141,10,6,32,2062,6,12,3,5,32,10,64,9,6,5,140,32
7030 DATA7,9,23,5,5,1,1,5,5,9,27,6,9,7,5,9,14,10,11,7,8,10,11,6,5,9,2,5,8,2,29,10,10,2,1,4109,1034,10,27,10,6,5,8,10,10,3,12,10,6,12,3,5,12,6,10,10,7,0,5,9,14,3,9
7040 DATA3,5,8,6,5,12,11,6,5,12,10,10,7,4,5,1,13,6,1,5,5,12,6,5,9,3,12,64,7,4,1,5,9,3,29,10,2,5,12,3,29,10,64,10,6,5,12,6,5,13,6,5,12,6,12
7050 FOR0=1TO1000:NEXT:RETURN
8000 CLS:?PRINTTAB(10)"P Y R A M I D   O F   S E C R E T S":PRINT:PRINT:PRINT"YOU ARE O
UTSIDE THE ENTRANCE OF THE PYRAMID.  IN A MOMENT YOU
CAN ENTER AND FIND YOUR WAY AROUND."
8010 PRINT"THERE ARE TEN TREASURES TO FIND AND MINOR HAZARDS TO AVOID
THERE ARE SOME TRAPS IN THE FLOOR WHICH WILL DROP YOU TO THE    LEVEL BELOW SOME
TIMES AND THERE ARE WALLS WHICH LOOK SOLID BUT"
8020 PRINT"WHICH WILL ALLOW YOU THROUGH IF YOU MOVE FOREWARD INTO THEM. YOU CONT
ROL YOUR WAY THROUGH THE PYRAMID USING -
          (F) FOR FOREWARD, (R) TO TURN RIGHT, (L) TO TURN LEFT
          (H) WILL TELL YOU THE LEVEL YOU ARE ON AND
8030 PRINT"THE DIRECTION YOU ARE FACING BUT REDUCE YOUR TIME.
YOUR TIME IS LIMITED SO DON'T TAKE TOO LONG PONDERING !":RETURN
```

SSSNAKES

BY STEVEN JERATH

RUNS ON AN ATARI 400 IN 16K

Are you a slippery customer? Then here's your chance to prove it. The aim of this two player game is to trap your opponent in the coils of your snake while at the same time avoiding getting trapped yourself.

You cannot go back on yourself or touch your own line. You must not touch your opponent's line. Also you have to stay away from the stars which dot the screen — and of course you must stay away from the walls.

```
5 GOSUB 2000
10 GRAPHICS 7+16:V1=0:V2=0:H1=1:H2=-1
11 SETCOLOR 2,7,8
15 FOR AAA=1 TO 20:COLOR 3:PLOT INT(RND
(0)*160), INT(RND(0)*96):NEXT AAA
20 X1=19:Y1=40:X2=140:Y2=40
40 COLOR 3:PLOT 0,0:DRAWTO 159,0:DRAWTO
159,95:DRAWTO 0,95:DRAWTO 0,0
30 A=STICK(1)
40 B=STICK (1)
50 IF A=14 THEN V1=1:H1=0
51 IF A=13 THEN V1=-1:H1=0
52 IF A=11 THEN H1=-1:V1=0
53 IF A=7 THEN H1=1:V1=0
60 IF B=14 THEN V2=1:H2=0
61 IF B=13 THEN V2=-1:H2=0
62 IF B=11 THEN V2=-1:H2=0
63 IF B=7 THEN H2=1:V2=0
80 X1=X1+H1:Y1=Y1+V1
81 IF X1=X2 AND Y1=Y2 THEN 300
85 LOCATE X1,Y1,ZZ:IF ZZ<>0 THEN 200
86 LOCATE X2,Y2,ZZ:IF ZZ<>0 THEN 200
90 COLOR 1:PLOT X1,Y1
91 COLOR 2:PLOT X2,Y2
95 GOTO 30
100 GRAPHICS 1+16
101 POKE (PEEK(560)+256*PEEK(561))+3,64+
71:SETCOLOR 2,7,10
```

```
                PLAYER 1 LOSES!
102 ? #6;"        "
103 R2=R2+1:IF R2>9 THEN 500
104 ? #6;? #6;? #6;"          SCORES"
105 ? #6;"        "
                player  1-";R1;? #6;
player  2-"=?R2
150 FOR S=0 TO 250:SOUND 0,S,10,10:NEXT
S:SOUND 0,0,0,0
190 ? #6;? #6;"         hit any key "
199 GET #1,K:GOTO 10
200 GRAPHICS 1+16
201 POKE (PEEK(560)+256*PEEK(561))+3,64+
71:SETCOLOR 2,7,10
                PLAYER 2 LOSES
202 ? #6;"        "
203 R1=R1+1:IF R1>9 THEN 600
204 ? #6;? #6;? #6;"          SCORES"
205 ? #6;"        "
                player 2-";R2;? #6;
player 1-"=?R1
250 FOR S=0 TO 250:SOUND 0,S,10,10:NEXT
S:SOUND 0,0,0,0
290 ? #6;? #6;"         hit any key "
299 GET #1,K:GOTO 10
300 GRAPHICS 1+16
301 POKE (PEEK(560)+256*PEEK(561))+3,64+
71:SETCOLOR 2,7,10
                PLAYER  you both lost!!!
302 ? #6;"        "
303 ? #6;? #6;? #6;"         unlucky!!!"
304 FOR S=0 TO 250:FOR W=0 TO 10:SOUND 0,
S,10,10:NEXT W:NEXT S
310 GOTO 190
500 GRAPHICS 1+16
501 POKE (PEEK(560)+256*PEEK(561))+3,64+
```

```
7:SETCOLOR 2,7,10
502 ? #61" PLAYER NO.2 WINS"
503 FOR ZZZ=0 TO 100:FOR W=0 TO 20:NEXT
W:SOUND 0,ZZZ,10,4:NEXT ZZZ
504 SOUND 0,0,0,0
510 GOTO 610
600 GRAPHICS 1+16
601 POKE (PEEK(560)+256*PEEK(561))+3,64+
7:SETCOLOR 2,7,10
602 ? #61" PLAYER NO.1 WINS"
603 FOR ZZZ=0 TO 100:FOR W=0 TO 20:NEXT
W:SOUND 0,ZZZ,10,4:NEXT ZZZ
604 SOUND 0,0,0,0
610 ? #61? #6:? #6:? #6
620 ? #61" hit any key for"
630 ? #61"     another game"
640 GET #1,K:RUN
1000 FOR W=0 TO 500:NEXT W
```

```
1001 RETURN
2000 OPEN #1,4,0,"K"
2001 GRAPHICS 1+16
2002 POKE (PEEK(560)+256*PEEK(561))+3,64
+7
2003 ? #61"             snakes"
2004 SETCOLOR 2,0,14
2010 ? #61? #6
2020 ? #61"  IN THIS 2 PLAYER"
2021 ? #61"  GAME EACH PLAYER"
2022 ? #61"  TRIES TO AVOID THE"
2023 ? #61"       OTHERS TRAIL"
2024 ? #61" USING THE JOYSTICK"
2025 ? #61? #61"hit any key to begi
n"
2026 GET #1,K
2050 RETURN
9999 GOTO 9999
```

RED ALERT

BY SIMON PARKER

RUNS ON A VIC-20

IN 16K

Got tunnel vision? Then this game is the one for you! Zapping through narrow tunnels in a tank some arcade video freaks just love. And here's a program that will save a few of those precious 10p's.

It's based on an arcade game called Scramble — the game that you either love or hate. For those of you who have yet to come across the game — and you might be here and far between here's a rundown on what you have to do. The idea is to pilot a spacecraft over the ever changing landscape of an alien cavern, dotted with fuel dumps. You must avoid the walls of the cavern and the spaceships which advance against you.

You bomb the fuel dumps and shoot down the ships — it's as simple as that!

The program is written mainly in basic apart from a small machine code routine in a subroutine from 5000. This is used to pull the screen from right to left. The game can be controlled using either the keyboard or a joystick.

```
0 REM**RED ALERT**
1 REM**BY SIMON PARKER **
2 REM**27/6/1982
5 P=7984
6 J=5 O=5 CC=5 DD=9
7 GOSUB1000:GOSUB5000
8 TI$="000000"
10 PRINT"J"
20 POKE36879,143 POKE36878,15
30 R=RND(1)
31 IFTI$="000200"THENPOKE36879,9:C=6,65 DD=.8
32 IFTI$="000330"THENPOKE36879,57 CC=.75 DD=.7
35 R=RND(1)
36 IFCCCTHENJ=J+1 GOTO40
37 J=J-1
40 IFCCCCTHENG=G+I GOTO046
45 G=G-1
46 IFJG<10ANDJG>10THENG=G-1 J=J-1
47 IFJ<6G>17THENJ=J-1 G=G-1
48 IFJ<1THENJ=1
49 IFG<1THENG=1
50 POKES=ITOJ
51 NEXTK IFB<.20RD>.8THENPOKE8IS=22+K,22 POKE8I
65*30728-22+K,2
62 FORK=ITOG
65 POKEP7701+22+K,20 '
66 NEXTK
91 IFCC<DDTHENPOKE7701+22K+44,24 POKE38421+22+K+44.28
91 POKEP,32
100 SYS(829)
125 POKEP,21 POKE=-1,32
126 PRINT"#$SCORE"SC
130 POKEP 32
135 L=PEEK(197) P2=PEEK(65,)
140 L=PEEK(197)=2 P0=PEEK37154,127 P1=PEEK(37152) POKE37154,255
143 IFL=30#RDF1=1190RP2=14RNDL=14THENGOSUB4000 GOTO0181
145 IFL=300RP2=1THENSC=SC-50 GOSUB3000 GOTOI81
150 IFL=540RL2=22THENF=P+22
160 IFL=460RL2=13THENF=P-22
170 IFL=520RP3=3THENF=P-1
180 IFF1=1190RL2=14THENF=P+1
181 IFPEEK(P+1)<>32THENGOTO02000
190 POKEP 21 POKEF-1,32 POKE36877/120+INT-(P-7680),4)
200 GOTO320
1000 POKE52,28 POKE56,28
```

```
1010 FORI=7168TO7679 POKEI,PEEK(I+256*NQ) NEXT
1020 FORC=7328TO7367 READA NEXT
1035 POKE36869,255 RETURN
1040 DATA70,85,170,85,170,85,170,85
1050 DATA0,128,192,224,254,255,255,0
1060 DATA0,60,126,126,255,60,66,129
1070 DATA160,80,168,75,168,90,160,0
1080 DATA0,1,3,7,127,255,255,0
2000 FORI=1TO10
2010 POKE36879,1#+10
2011 POKE36878,10-I
2012 POKE36877,220
2020 FORA=1TO200 NEXTA
2030 NEXTI
2040 FORA=1TO1000 NEXTA
2045 POKE36869,240 PRINT"J"
2050 PRINT"#MN#GAME OVER##"
2060 PRINT"#M#YOU SCORED"SC
2070 PRINT"#M#ANOTHER GAME (Y/N)"
2080 GETA$ IFA$=""THEN2080
2081 IFA$="Y"THENJ=0 S=0 P=7904:SC=0 TI$="000000" POKE36869,255 GOTO10
2082 IFA$="N"THENPRINT"J" POKE36869,240 END
2090 GOTO2080
3000 FORI=1TO10
3005 POKEN 32
3010 N=P+A22 POKE36876,150+M+10
3020 IFPEEK(N)=22THENSC=SC+250 POKEN,42 POKE36876,0 RETURN
3030 IFPEEK(N)=20THENPOKEN,42 POKE36876,0 RETURN
3040 POKEN,90 NEXTM POKEN,32 POKE36876,0 RETURN
4000 SC=SC-100 FORI=1TO10 POKEM1,32 M1=P+8 POKE36876,240 POKE36876,0
4010 IFPEEK(M1)=20THENPOKEM1,42 RETURN
4011 IFPEEK(M1)=23THENSC=SC+200 POKEM1,32 RETURN
4012 IFPEEK(M1)=24THENSC=SC+150 POKEM1,32 RETURN
4020 POKEM1,42 POKEM1,30720,1
4030 NEXTM POKEM1,32 RETURN
5000 FORK=829TO874 READS POKEK,S NEXTK RETURN
5010 DATA169,19,32,210,255,169,29,32,210,255,169,13,32,210,255,169,0,141,60,3
5020 DATA169,32,32,210,255,169,20,32,210,255,169,13,32,210,255,238,60,3,173,60,
3
5030 DATA201,21,208,231,96
5040 RETURN
```

BY M. LEVIN

RUNS ON AN

ATOM IN 16K

Warning. This game can impair your sanity.

Written in machine code for on Atom with at least 3K of RAM this program seems designed to either increase your reasoning powers or destroy what little sanity you may have left.

You are given a nine square grid with a random number of these squares illuminated. By pressing any of the numeric keys within the range of 1-9, different combination of these squares may be obtained.

The final object being to light up all the squares except the centre one. Should you manage this task you are rewarded by a dazzling display of sight and sound, small consolation for shattered nerves.

```
100IMKK&.WW2
20P,#12"WAIT"#21
30GOS.a:GOS.#
40!#300=#BF0F0FBF;!#304=#0000000F;!#308=#00
50!#310=#00BF0F0F0F;!#314=#00000000;?#310=#00
60!#320=#000F0F00;!#324=#00000F0F;?#320=#00
70!#330=#0F0F0000;!#334=#000F0000;?#330=#00
80!#340=#0F0F0F00;!#344=#BF00BF0F;?#340=#00
90!#350=#0F00000F;!#354=#0000000F;?#350=#0F
00!#360=#0F0F0F00;!#364=#000F0F0F;?#360=#00
110!#370=#00000000;!#374=#0F0F0000;?#370=#0F
120!#380=#00000000;!#384=#00000000;?#380=#00
130IF.X2=0:?#00A7=#FF,IF.X2=0:?#00A9=#FF,IF.X2=0:?#00AF=#FF
140IF.X2=0:?#0107=#FF,IF.X2=0:?#010B=#FF,IF.X2=0:?#010F=#FF
150IF.X2=0:?#0167=#FF,IF.X2=0:?#016B=#FF,IF.X2=0:?#016F=#FF
160!#CE=#0025;P,."magic"#128"square"
170MOVE10.9;DRAW18,35 MOVE27,9;DRAW27,35 MOVE10 10;DRAW35,10
180MOVE10.26;DRAW35 26
190 LINK #3300
195 RUN
200 END
210a P=#3300
220D,"KKa JSR#FFE3 \ GET KEY
230 CMP#31;BMI KK0
240 CMP#040;0PL KK0
250 AND&#00F
```


MAGIC SQUARE

14

```
260 ROL A:ROL A
270 ROL A:ROL A
280 STA#00
290 SBC/SBC#$10
300 TAX
310 LDY#09
320 \ COMPLIMENT
330 LDA#$300,X
340 STA#$300,X
350 INX
360 LDA#00B
370 EOR#$300,X
380 STA#00B
390 INX
400 LDA#00F
410 EOR#$300,X
420 STA#00F
430 INX
440 LDA#$107
450 EOR#$107
460 STA#$107
470 INX
480 LDA#$10B
490 EOR#$300,X
500 STA#$10B
510 INX
520 LDA#$10F
530 EOR#$300,X
540 STA#$10F
550 INX
560 LDA#$167
570 EOR#$167
580 STA#$167
590 INX
600 LDA#$168
610 EOR#$300,X
620 STA#$169
630 INX
640 LDA#$16F
650 EOR#$300,X
660 STA#$16F
670 INX
680 CLC:JMP KKB
690 \KK2 LDY#00
  \ BLEEP
700 LDA#$002
710 \KK3 LDX#00
720 \KK4 DEX:BNE KK4
730 EOR#04
740 LDA#$002
750 DEY
760 BNE KK3
770 LDA#00A7
  \ WIN CHECK
780 CMP#$FF
790 BNE KK1
800 LDA#00B
810 CMP#$FF
820 BNE KK1
830 LDA#00F
840 CMP#00
850 BNE KK1
860 LDA#$107
870 CMP#$FF
880 BNE KK1
890 LDA#$10B
900 CMP#$FF
910 BNE KK1
920 LDA#$10F
930 CMP#00
940 BNE KK1
950 LDA#$167
960 CMP#$FF
970 BNE KK1
980 LDA#$168
990 CMP#$FF
1000 BNE KK1
1010 LDA#$16F
1020 CMP#00
1030 BNE KK1
1040 LDA#09:STA#40
  \CSKK5
1051 \WW0 LDX#$90
  \BLEEP
1052 \WW1 TYA,TAY
1053 LDA#0002
1054 \WW2 EOR#4
1055 STA#0002
1056 \WW2 DEY,BNE WW2
1057 DEX,BNE WW1
1058 RTS
1060 \KK5 LDA#00A7
  \ DISPLAY WIN
1070 EOR#0F
1080 STA#00A7
1090 JSR WW0
1100 LDA#00B
1110 JSR WW0
1120 LDA#0F
1130 JSR WW0
1140 LDA#00B
1150 EOR#00F
1160 STA#00B
1170 JSR WW0
1180 LDA#$107
1190 EOR#0F
1200 STA#$10F
1210 JSR WW0
1220 LDA#$16F
1230 EOR#0F
1240 STA#$16F
1250 JSR WW0
1260 LDA#$16B
1270 EOR#0F
1280 STA#$16B
1290 JSR WW0
1300 LDA#$167
1310 EOR#0F
1320 STA#$167
1330 JSR WW0
1340 LDA#$107
1350 EOR#0F
1360 STA#$107
1370 JSR WW0
1380 DEC#40;BNE KK5
1390 RTS
1400]
1490 RETURN
```

BREAK**O**UT!

Ever feel like you're just banging your head up against a brick wall? Wall, here's your chance. Simply program in this little number and you'll be able to knock down walls as quick as your computer can build them.

It's a game for one player and the object is to knock as many bricks out of the multicoloured wall as you can by bouncing a balls to score as many points as you can. Key '5' moves your bat left, key '8' moves it right.

BY DAVID HOUNSLOW

RUNS ON A SPECTRUM IN 16K

```
1 LET h$=0
2 PAPER 0: BORDER 0
3 FLASH 0: BRIGHT 0: CLS
4 PRINT AT 10,2; FLASH 1; FLASH 1"Do you
want instructions"
5 LET a$=INKEY$" IF a$="" THEN
GO TO 5
6 IF a$="y" OR a$="Y" THEN GO
SUB 600
10 LET ballsleft=1 LET b
et h$=0 FOR s=0 TO 7 READ row
15 LET s=CHR$ 16:CHR$ 8 4+
16 DATA BIN 01110,BIN 01111
110,255,255,255,BIN 0111110,B
IN 00111000
20 PAPER 0 INK 6: LET xmove=1
30 PAPER 0 LET xmove=1
40 PAPER 0
50 BORDER 0
52 REM page 1
54 IF ss=200 THEN CLS LET b
allsleft=ballsleft+1 LET b INK 6
PRINT AT 10,10; FLASH 1; BEEP .5; BEEP .25 FOR p=
0 TO 100: BEEP .25 "ballsleft=0
THEN LET ballsleft=0
55 LET bn=0 IF ss=0 THEN L
 h$s PRINT AT 2,0; PAPER 2;" "
PRINT AT 1,0; PAPER 0; INK 7;"SCO
RE "; INT 7,5;1 TO 4=LEN (STR$
s));1; INK 6"(STR$ (h$)));ha"B
(TO 4=LEN (STR$ (h$)));h$) INK 6,balls
PRINT AT 1,31-7;"BALL"; INK 6,balls
left
60 FOR x=0 TO 28 FOR x=0 TO 29
STEP 2 PRINT AT a,PAPER b; b
STEP 2 PRINT AT b,b+1; PAPER 2;"a b+b+
w=2;INT (x/2)) "a b+b
NEXT x IF b=5 THEN LET b=5
70 NEXT b INK 7 PRINT AT w,x@
FOR x=0 TO 21 PRINT AT w,0; NEX
T w PRINT AT 21,0; PAPER 2;"a
T 0,0;" "
59 PRINT AT 10,0;" AT 10,30
INK 7,0; " AT 17,30
INK 7,0;" AT 17,30
90 LET x=15 LET x=1 TO 2
91 BEEP .5,10 FOR x=1 TO 2 B
EEP .125,13; BEEP .125,0 NEXT
92 PRINT AT 18,13; PAPER 2;"a
298,13; BEEP .5,0 LET (RND *
201=5) PRINT AT 8,x;"a
10 GO SUB 300
100 PRINT AT 10,x;s
110 IF INKEY$="5" THEN GO TO 100
115 IF INKEY$="8" THEN GO TO 100
120 LET x=x+2*(INKEY$="8")-2*(I
```

```
KEY1 IS 1: IF X>=29 THEN LET x=29
330 GO TO 330
335 PRINT bk by,bx;" "
310 LET by=by+ymove
    x+xmove
325 IF by<=3 THEN LET ymove=1
    BEEP .01,25
330 IF by<=35 OR bx<=3 THEN LET x
move=-xmove
335 IF by>=20 THEN LET ballsfir
=1:ballslev=1
325 IF NOT ballsfir=1 THEN LET b
    PRINT AT 1,35;balls":LET b
ove=-1:LET move=1: GO TO 95
325 IF ballsfir=4 THEN GO TO 5
...
330 LET attr=ATTR (by,bx)
335 IF attr AND ymove=1(real)
    GO TO 410
340 IF (x<=bx+(x+3 OR a+1(real)
    ove=-1: THEN attr=58 OR at
350 IF attr=66 OR attr=58 THEN
    PRINT AT
358 IF by=56 THEN LET bx+1= THEN PRINT A
    ATTR (by,bx+1): THEN GO TO 370
    T by,bx+1;s? THEN PRINT AT ATTR
360 IF attr=ATTR THEN PRINT by,bx-
    bx+1): THEN GO TO
370 LET bn=bn+1  LET s=s+1
375 PRINT AT 1,3: BEEP 0.01,35:
    LEN (STR$ (s));s
```

```
370 IF s>=9996 THEN LET s=0
350 IF s>hs THEN LET hs=s
    AT 3,19,s$ TO 4-LEN (STR$ (hs
    ))); hs
381 GO TO 400
380 PRINT by,bx; INK 6;"O"
410 RETURN
420 REM
430 PRINT AT 10,12; FLASH 1;"
    "GAMEOVER"  FOR x=1 TO 500
NEXT x: CLS
600 INK 0: CLS
610 INK 8: PAPER 7: INK 3,12;"BREA
    PAPER 7: INK 8; FOR i=1 TO PRINT CHR$
    NEXT i: PRINT OVER 1; INK 8
620 PRINT "...This is a game f
or 1 player. The object is to kno
ck as many bricks out of the w
all as you can. You do this by
hitting the ball ...  You
    have 3 balls in wh
    bat You move your
ch to score  moves your
bat  left......  key 8 Moves yo
    right.....  INK 3,5: BR
IGHT 1
630 PAUSE 0: LET a$=INKEY$: IF
a$<>"" THEN GO TO 630
    PRESS ANY KEY TO START]
640 RETURN
```

AIR ATTACK

BY IAN STRINGER

RUNS ON AN ATARI 400 IN 16K

You are in command of a giant battleship armed with all the latest weapons. And you are under attack.

Jet fighters, helicopters and armoured balloons are out to do your ship damage.

Your task is to use your supply of missiles — 20 in all — to the best advantage. Shoot down as many of the enemy as possible with the limited supply of weaponry. When your armament is used up the computer shows the high score.

```
1 REM    *** AIR ATTACK ***
2 REM       By Ian Stringer
3 REM          1982
4 REM
5 DIM Y(4):Y(0)=91:Y(1)=20:Y(2)=30:Y(3)=
40:Y(4)=88:REM Controls vertical positio
n of 4 players
6 X1=100:X2=150:X3=55:X0=100:Q1=-3:Q2=4:
Q3=-2:Q0=2:REM X controls horz. position
of players
7 B=75:B1=8:X0=40
10 PMBASE=54279:RAMTOP=106:SDMCTL=559:GR
ACTL=53277:HPOSP0=53248:HPOSP1=53249:HPO
SP2=53250:HPOSP3=53251
20 PCOLR0=704:PCOLR1=705:PCOLR2=706:PCOL
R3=707
30 SIZEP0=53256:SIZEP2=53258:REM Used to
alter width of players 0 & 2
50 P1PF=53253:P2PF=53254:P3PF=53255:REM
Used to detect collisions between playf
eild(missile) & players
90 POKE SIZEP0,1:POKE SIZEP2,1:REM Playe
rs 0 & 2 set to double width
99 REM
100 GRAPHICS 7
110 A=PEEK(RAMTOP)-24:POKE PMBASE,A:HYPM
BASE=256*A:POKE SDMCTL,46:POKE GRACTL,3
120 POKE HPOSP0,X1:POKE HPOSP1,X1:POKE H
POSP2,X2:POKE HPOSP3,X3
125 REM
130 FOR I=HYPMBASE+384 TO HYPMBASE+1024:
POKE I,0:NEXT I:REM Clears P-M RAM
140 FOR I=HYPMBASE+512+Y(0) TO HYPMBASE+
516+Y(0):READ A:POKE I,A:NEXT I
150 FOR I=HYPMBASE+640+Y(1) TO HYPMBASE+
644+Y(1):READ A:POKE I,A:NEXT I
160 FOR I=HYPMBASE+768+Y(2) TO HYPMBASE+
773+Y(2):READ A:POKE I,A:NEXT I
170 FOR I=HYPMBASE+896+Y(3) TO HYPMBASE+
905+Y(3):READ A:POKE I,A:NEXT I
180 REM Lines 140-170 read player data i
nto P-M RAM
190 POKE PCOLR0,88:POKE PCOLR1,26:POKE P
COLR2,138:POKE PCOLR3,230
191 POKE 752,1:SH=20:REM 752,1 removes c
ursor
192 GOSUB 1600
196 GOSUB 1500
199 REM
200 GOSUB 900:REM MOVE TARGET
210 IF STRIG(0)=0 THEN ST=1
220 IF ST=1 THEN GOSUB 1200:REM BULLET
230 GOSUB 1300:REM MOVE SHIP
240 GOSUB 1300:REM CHECK HITS
250 IF SH=0 THEN GOSUB 1410
300 GOTO 200
900 REM
1000 X1=X1+Q1:POKE HPOSP1,X1:IF X1<35 TH
EN X1=220
1010 X2=X2+Q2:POKE HPOSP2,X2:IF X2>220 T
HEN X2=35
1020 X3=X3+Q3:POKE HPOSP3,X3:IF X3>215 O
R X3<35 THEN X3=-Q3
1090 RETURN
1100 F=230:IF STICK(0)=11 THEN X0=X0-Q0:
```

```
F=170
1110 IF STICK(0)=7 THEN X0=X0+Q0:F=180
1115 IF X0>199 THEN X0=199
1116 IF X0<40 THEN X0=40
1120 POKE HPOS79,X0:SOUND 3,F,6,10
1130 RETURN
1200 COLOR 0:PLOT X8,B
1210 B=B-2:COLOR 1:PLOT X8:XA=X0-40
1220 SOUND 8,10,14
1250 IF B<2 THEN COLOR 0:PLOT X8,B:B-75:
ST=0:SH=SH-1
1390 RETURN
1300 IF PEEK(P1PE)<>0 THEN HIT=1:GOTO 13
40
1310 IF PEEK(P2PF)<>0 THEN HIT=2:GOTO 13
40
1320 IF PEEK(P3PF)<>0 THEN HIT=3:GOTO 13
40
1340 IF HIT=0 THEN 1390
1345 FOR S=20 TO -20 STEP -1:SOUND 0,ABS
(S),8,12:NEXT S
1350 IF HIT=1 THEN SC=SC+30:X1=30
1355 IF HIT=2 THEN SC=SC+15:X2=225
1360 IF HIT=3 THEN SC=SC+5:X3=43:Q=1
1385 COLOR 0:PLOT X8,B
1389 SOUND 0,0,0,0:ST=0:B=75:HIT=0:POKE
53278,1:HIT=0
1390 POKE 656,1:POKE 657,9:? SC
1395 POKE 656,1:POKE 657,207:? SH:" "
1400 RETURN
1410 OPEN #1,4,0,"K:":SOUND 3,0,0,0
1415 ? " "
1420 POKE 656,1:POKE 657,2:? " YOU SCOR
ED "SC" IN 20 SHOTS.
                                    PL
```

```
AY AGAIN (Y/N)":GET #1,K
1425 IF K=255 THEN 1420
1430 IF K<>89 THEN END
1435 IF SC>HSC THEN HSC=SC
1440 SC=0:SH=SH
1480 ? " "
1486 GOSUB 1500
1488 POKE 656,2:POKE 657,14:? HSC
1469 CLOSE #1
1490 RETURN
1500 POKE 656,1:POKE 657,3:? "SCORE"
1510 POKE 656,1:POKE 657,24:? "SHOTS"
1520 POKE 656,2:POKE 657,3:? "HIGH SCORE
"
1550 RETURN
1600 XX=0:POKE 656,0:POKE 657,10:? "***
AIR ATTACK ***":SOUND 0,255,10,8:SOUND 1
,254,10,8
1620 XX=XX+1:IF XX>10 THEN 1630
1610 POKE 656,2:POKE 657,13:? "Press STA
RT"
1630 IF PEEK(53279)=6 THEN 1690
1640 GOSUB 1000
1649 IF XX<10 THEN 1680
1630 POKE 656,2:POKE 657,19:? " "
1651 IF XX>20 THEN 1630
1680 GOTO 1619
1690 SOUND 0,0,0,0:SOUND 1,0,0,0:? ")":R
ETURN
2999 REM
3000 DATA 8,8,30,63,255,253,51,94,120,12
0,128,192,254,255,12,56,60,126,255,235,2
55,187,66,36,60,60
                                    PL
```


WORLD CUP

BY G. R. JOHNSON

RUNS ON A BBC MODEL B IN 32K

Remember the World Cup? Those heady summer days when England still had it all to play for and everyone was saying that this time the lads could pull it off . . .

Well they didn't quite make it did they? And now there's another four years to wait until the next one. Still, you can fill in the time by programming in our version of the World Cup conflict.

By special request was the reprinting one of C&VG's most popular program listings – first published in June last year. But this time we've adapted it so all you BBC owners can share the same soccer supremo.

World Cup Manager sets out to give you all the frustrations of sitting on the bench when the national side you manage go a goal down 20 minutes from time in a crucial match.

Hopefully, with some careful attention to tactics and good substitutions in critical games, it should give you all the elation of guiding your country's teams through to the championships of the World Cup Finals.

It will let you manage any of the 24 countries involved in the 1982 World Cup but expect to have a more difficult time if you pick El Salvador than if you choose Brazil.

It invites you to enter your team and then publishes the draw for the competition with initially six groups of four. Set out the countries you think will be stumbling blocks to your continuation in the competition and send off your goals to watch them.

Remember you can get through by finishing second in your group so it may not be necessary to match all three teams in your group. The first game comes up and a dossier on the opposition is printed out. Pay careful attention because you will have to find good tactical answers to the opposition's ploys.

There are other considerations too. Choose your formation carefully and if you need to boost your goal differ-ence to qualify, try to manufacture an open game.

Then it's out of your hands and the two teams are up against one another with a running commentary of events. Keep a close check on which of your players seem to lose possession and play badly, these are the one's you will want to substitute.

Also watch for which team is gaining the most possession in midfield – you may need to change tactics.

Check on how the goals are scored – it could be important to tighten up your defence to certain situations or to find out which of your own attacking ploys is paying dividends.

Half-time comes around and this is your chance to change your tactics if you have noticed things going wrong.

At the end of the day, win, lose or draw, you will have to sit back and watch the other results of the day being typed out and see if your predictions are coming true.

17

```
    7   *TV 255 1
   20   MODE 7
   30   DIM X#(12)
   40   J$=STRING$(150,"22"):J$="
   50   E1=0:E2=0:X3=0:X5=0
   60   DIM W(4),W(4),D9(4),F9(4),A9(4),HX(4,3),D8(4),T9(4),P9(4),RX(24),S8(4),N1
(2),SX(24),DX(6,6),HX(3,3),BX(3,3),CX(3,3),DX(3,3),T4(20),A$(24),FX(24),I$(3,3)
,JX(3,3),WX(24,21),NX(24),TX(24),UX(24),VX(24),WX(24),XX(24),YX(24)
   70   DIM ZX(24),Z9#(12),AI$(9),A2$(9),E%(11)V=01B4=0
   80   DEF FNA(X)=INT(RND(1)*X)+1
   90   DATA BRAZIL,ARGENTINA,W.GERMANY,YUGOSLAVIA,HUNGARY,BELGIUM,ITALY,POLAND,F
RANCE,CZECHOSLOVAKIA,SPAIN,ENGLAND,SCOTLAND,N.IRELAND,PERU,AUSTRIA,CHILE,EL SALV
ADOR,HONDURAS,ALGERIA,N.ZEALAND,CAMEROON,KUWAIT,RUSSIA
  100   DATA 1,1,0,1,2,1,1,0,0,0,0,1,1,2,1,0,2,2
  110   DATA " HITS THE BALL FAR AHEAD OF ","'S PASS IS MISCONTROLLED BY ","
LOSES THE BALL IN A MISUNDERSTANDING WITH "," HITS A LONG BALL TO ","  PASSES WID
E TO ","  CROSSES TO ","  PLAYS A HIGH BALL TO ","  COLLECTS A PASS FROM "
  120   DATA " ALWAYS A ONE-TWO WITH "," IS SENT AWAY BY ","  WINS A FREE KICK FROM
","  MOVES INSIDE ","  SWERVES PAST ","  DUMMIES ","  RUNS ROUND ","  RACES PAST ","
SHRUGS OFF A CHALLENGE FROM "," IS TACKLED BY ","'S PASS IS CUT OUT BY "
  130   DATA "'S CROSS IS HEADED AWAY BY ",5,15,30,30,5,15,15,30,5,30,5,50,15,15,5,3
0,20,15,5,20,15,15,5,30,10,15,5,"S CHIP FOR GOAL IS HEADED AWAY BY ","  LOSES T
HE BALL TO "," IS TACKLED BY","'S VOLLEY IS PUNCHED CLEAR BY"
  140   DATA "'S FIERCE DRIVE IS WELL SAVED BY","  BLASTS THE BALL WIDE ","  ROUNDS
THE KEEPER AND MISHITS ","  BEATS TWO DEFENDERS AND SHOOTS WIDE ","  STUMBLES AN
D LOSES THE BALL ","  CHIP FOR GOAL FINDS THE BACK OF THE NET!"
  150   DATA " BLASTS THE BALL HOME!","  VOLLEYS INTO THE ROOF OF THE NET ","  TAPS T
HE BALL IN FROM 5 YARDS!"," HITS A LOW SHOT INTO THE NET"," IS SHOT BOUNCES UNDER
THE KEEPER!",5,10," SHOT IS DRAGGED BY THE KEEPER","  LEADS FLY WITH A LONG SHOT"
  160   DATA  STEPS INSIDE THE FULLBACK,ROUNDS THE KEEPER AND SLOTS HOME"
  170   *SPODER ALLAPRINT"CHOOSE YOUR TEAM-ENTER A NO. FROM LIST"
  180   D:1:PROCHOUSE:PROCTEAM
  191   C:5:PRINT"NOW KEY IN THE NAMES OF YOUR PLAYERS":PRINT CHR$(136);"--MAXIMU
M OF 15 LETTERS"
```

```
   1   FOR I=1T1
     1   IF ... HEN ... GOALKEEPER
     1   IF ...1AND(I    ... PRINT"DEFENDER "+STR$(I-1)
     .      IF  ...5AND(I ...THEN PRINT"MIDFIELD "+STR$(I-5)
   40   IF .. 8AND(I .. THEN PRINT "STRIKER "+STR$(I-8)
   45   IF ....9 THEN PRINT"SUBSTITUTE"
   20   INPUT N$
   25   IF LEN(N$(I))>15 THEN PRINT"NAME IS TOO LONG,RE-ENTER. "GOTO 260
   270   NEXT
   28   CLS:PRINT "YOU ARE MANAGER OF ";CHR$(136);A$(T)
   29   PRINT "YOUR AIM IS TO WIN THE 1982 WORLD CUP"
   30   PROCDELAY
   330   FOR J=1TO6
   5:0   5:0
   340   Z=FN(Z4)
   350   IF  DX(Y)=0 THEN GOTO 340
   360   S=S+1
   5:   DX(Y)=-1:DX(I,S)=Y
   35   IF S=4 THEN GOTO 400
   38   GOTO 340
   35   NEXT
   41   CLS:PRINT"THE DRAW IS:-"
   420   PRINT:PRINT "GP. ";STR$(I);TAB(20);"GP. ";STR$(I+3):PRINT
   440   FOR J=1TO6
   450   PRINT:A$(DX(I,J));TAB(20):A$(DX(I+3,J))
   460   NEXT:INEXT:1
   470   PRINT
```

```
   480   PROCCONTINUE:PROCSLOW:PROC.',XTURE:PROCSECTAGE:PROCCONTINUE:PROCSECFTXT:
PROCSEM1:PROCSEMPLAY:PROCFINAL
   490   PROCCONTINUE
   500   IF E2>E1 THEN B2=X2:B2=X1
   510   IF E1>E2 THEN B2=X1:B3=X2
   5:0   CLS:PRINT:TAB(0,6)"CONGRATULATIONS TO: ";PRINT:TAB(10,10):CHR$(136):A$(B2)
```

18

```basic
530 PRINT(TAB(0,15): 1 48) WORLD CUP WINNERS'
540 PRINTTAB(0,21)'DO YOU WISH TO PLAY AGAIN'
550 INPUT"TYPE 'Y' OR 'N'" S$
560 IF ASC(S$)=89 THEN CLS:RUN
570 IF ASC(S$)=78 THEN CLS
580 IF ASC(S$)<>89 AND ASC(S$)<>78 THEN GOTO 550
```

```basic
60? END
600 DEFPROCSORT
610 FOR I=1TO.4
620 FX(I)=INT((RND(1)*3)+1
630 READ D$(I)
640 AX(I)=FNA(3)
650 YX(I)=FNA(3)
660 XX(I)=FNA(3)
670 TX(I)=FNA(3)
680 JX(I)=FNA(3)
690 VX(I)=FNA(3)
700 WX(I)=FNA(3)
710 NEXT I
720 FOR I=1TO3
730 FOR J=1TO3
740 DX(I,J)=0
750 READ IX(I,J):READ JX(I,J)
760 NEXT J:NEXT I
770 FOR I=1TO20
780 READ T4$(I)
790 NEXT I
800 FOR I=1TO3
810 FOR J=1TO3
820 READ AX(I,J)
830 READ BX(I,J)
840 NEXT J:NEXT I
850 FOR I=1TO3
860 FOR J=1TO3
870 RX(I)=INT(RND(1)*10)+21
880 NEXT I
890 FOR I=4TO11
900 RX(I)=INT(RND(1)*10)+16
910 NEXT I
920 FOR I=12TO14
```

```basic
930 RX(I)=20
940 NEXT I
950 FOR I=1STO17
960 RX(I)=INT(RND(1)*5)+16
970 NEXT I
980 FOR I=18TO23
990 RX(I)=INT(RND(1)*5)+11
1000 NEXT I
1010 RX(24)=INT(RND(1)*22)+11
1020 DX(1,1)=5
1030 DX(3,3)=15
1040 FOR I=1TO12
1050 Z9$(I)=" NO. "+STR$(I)
1060 NEXT I
1070 Z9$(1)="THEIR GOALKEEPER "
1080 FOR I=1TO9
1090 READ A1$(I)
1100 NEXT I
1110 FOR I=1TO9
1120 READ A2$(I)
1130 NEXT I
1140 ENDPROC
1150 DEF PROCCHOOSE
1160 FOR I=1TO12
1170 IF X=1 THEN GOTO 1240
1180 IF (T-I)*(T-12-I)=0 THEN GOTO 1240
1190 IF T=I+12 THEN GOTO 1220
1200 PRINTTAB(20):STR$(I+12)")";:A$(I+12)
1210 GOTO 1250
1220 PRINTSTR$(I)")";:A$(I)
1230 GOTO 1250
1240 PRINT STR$(I):" ";A$(I):TAB(20):STR$
```

```basic
(I+12)")";:A$(I+12)
1250 NEXT I
1260 PRINT:PRINT
1270 ENDPROC
1280 DEF PROCTEAM
1290 INPUT"WHICH TEAM?"T$
1300 T=VAL(T$)
1310 IF T<1 THEN GOTO 1340
1320 IF T>24 THEN GOTO 1340
1330 GOTO 1360
1340 PRINT"ENTER A NO. BETWEEN 1 & 24"
1350 GOTO 1290
1360 ENDPROC
1370 DEF PROCWAIT
1380 TIME=0:REPEAT:UNTIL TIME=400
1390 ENDPROC
1400 DEF PROCCONTINUE
1410 PRINT"PRESS ANY KEY TO CONTINUE"
1420 Z$=GET$
1430 IF Z$="" THEN 1420
1440 ENDPROC
1450 DEF PROCSCOUT
1460 CLS
1470 PRINT"SCOUTS CAN COMPILE DOSSIERS ON 4 TEAMS"
1480 PRINT"ENTER 4 NOS. FROM THE FOLLOWING:"
1490 PRINT"SEPARATED BY COMMAS"'"===== == ====="'PRINT
1500 X=2
1510 PROCCHOOSE
1520 INPUT S1,S2,S3,S4
1530 IF(S1-T)*(S2-T)+(S3-T)*(S4-T)=0 THEN GOTO 1570
1540 IF(S1-S2)*(S1-S3)*(S1-S4)*(S2-S3)*(S2-S4)*(S3-S4)=0 THEN 1570
1550 IF S1(1 OR S1)24 OR S2(1 OR S2)24 OR S3(1 OR S3)24 OR S4(1 OR S4)24 THEN
```

```
1930 IF W6=4 THEN PROCX
1940 IF W6=4 THEN GOTO 1960
1950 K1=1:K2=3:J1=4
1960 FOR I=1TOW6
1970 PROCPOS
1980 PROCPOSPRINT
1990 NEXT I
2000 ENDPROC
2010 DEF PROCPOS
2020 FOR J=1TOJ1
2030 D(J)=0:F9(J)=0:A9(J)=0:P9(J)=0:W(J)=0:08
(J)=0:D9(J)=0
2040 NEXT J
2050 FOR J=1TOJ1
2060 T9(J)=OX(I,J)
2070 FOR K= K1 TO K2
2080 IF MX(T9(J),K+7)=0 THEN GOTO 2190
2090 T9(J)=MX(T9(J),K+7)=F9(J)
2100 A9(J)=MX(T9(J),K+14)+A9(J)
2110 Z7=MX(T9(J),K+7)
2120 Z6=MX(T9(J),K+14)
2130 D8(J)=Z7-Z6+D8(J)
2140 D(J)=D(J)+1
2150 IF Z7=Z6 THEN D9(J)=D9(J)+1
2160 IF Z6>Z7 THEN W(J)=W(J)+1
2170 IF Z6<Z7 THEN P9(J)=P9(J)+2
2180 IF Z6>Z7 THEN P9(J)=P9(J)+1
2190 NEXT K
2200 NEXT J
2210 F2=0
2220 FOR J=1TOJ1-1
2230 IF P9(J)<P9(J+1) THEN PROCSWAP
2240 IFP9(J)=P9(J+1)THEN PROCGOALDIFF
2250 NEXT J
2260 IF F2=1 THEN GOTO 2210
2270 ENDPROC
2280 DEF PROCGOALDIFF
2290 IF D8(J)<D8(J+1)THEN PROCSWAP
2300 IF D8(J)=D8(J+1) THEN ENDPROC
2310 IF F9(J)<F9(J+1) THEN PROCSWAP
2320 IF F9(J)=F9(J+1)THEN ENDPROC
2330 IF FNA(2)=1 THEN PROCSWAP
2340 ENDPROC
2350 DEF PROCSWAP
2360 F3=T9(J):T9(J)=T9(J+1):T9(J+1)=F3
2370 F3=F9(J):F9(J)=F9(J+1):F9(J+1)=F3
2380 F3=A9(J):A9(J)=A9(J+1):A9(J+1)=F3
2390 F3=D8(J):D8(J)=D8(J+1):D8(J+1)=F3
2400 F3=D9(J):D9(J)=D9(J+1):D9(J+1)=F3
2410 F3=P9(J):P9(J)=P9(J+1):P9(J+1)=F3
2420 F3=W(J):W(J)=W(J+1):W(J+1)=F3
2430 F3=D(J):D(J)=D(J+1):D(J+1)=F3
2440 F2=1
2450 ENDPROC
2460 DEF PROCPOSPRINT
2470 PRINT
2480 F$="F ":R4$="F "
2490 IF W6=4 THEN B$=CHR$(I+48)
2500 IF W6=4 THEN B$=CHR$(I+64)
2510 PRINT"GP. ";B$;" LEAGUE TABLE"
2520 FOR J=1TOJ1
2530 IF F9(J)>9 THEN F$=" F "
2540 IF A9(J)>9 THEN A4$=" A "
2550 NEXT J
2560 PRINTTAB(20);" P W D L ";F$;A4$;"Pts."
2570 FOR J=1TOJ1
2580 P4$=" ":P5$=" "
2590 L9=D(J)-W(J)-D9(J)
2600 IF F$=" F " THEN GOTO 2770
2610 IF A4$=" A " THEN GOTO 2790
2620 Y1$=STR$(J)+". "+A$(T9(J))
2630     PRINTY1$;TAB(21);D(J);" ";W(J);" ";D9(J);"
";L9;P4$;F9(J);P5$;A9(J);P4$;"
```
```
                    GOTO 1570
1560  ENDPROC
1570  PRINT"RE-ENTER 4 NOS.
FROM ABOVE LIST"
1580  GOTO1520
1590  ENDPROC
1600  DEF PROCFIXTURE
1610  W6=6
1620  D1=12
1630  H2=1:A2=2:PROCRESULT
1640  H2=3:A2=4:PROCRESULT
1650  H2=1:A2=3:PROCRESULT
1660  H2=2:A2=4:PROCRESULT
1670  H2=1:A2=4:PROCRESULT
1680  H2=2:A2=3:PROCRESULT
1690  ENDPROC
1700  DEF PROCRESULT
1710  D1=D1+1
1720  PROCPLAYCHECK
1730  CLS
1740  PRINT"RESULTS FOR :"D1;" JUNE '82"
1750  PRINT
1760  FOR I=1TO6
1770  H=OX(I,H2):A=OX(I,A2)
1780  IF H=T THEN B=P2:E=P3:GOTO 1810
1790  IF T=A THEN B=P3:E=P2:GOTO 1810
1800  GOSUB 2820
1810  PRINT"GP.";I;" ";A$(H);" ";B;
" ";A$(A);" ";C
```
```
1820   NEXT I
1830   IF D1=18 THEN PROCCONTINUE:PROCTABLE
1840   PRINT
1850   IF D1=18 THEN ENDPROC
1860   PRINT"PRESS 'L' FOR LEAGUE TABLES"
1870   PRINT"       ANY OTHER KEY TO CONTINUE"
1880   Z$=GET$
1890   IF Z$="" THEN GOTO 1880
1900   IF Z$="L" THEN PROCTABLE
1910   ENDPROC
1920   DEF PROCTABLE
```
```
2640  IF W6+J-5=0 THEN PROCSEMITEAM
2650  IF W6=4 THEN 2670
2660  IF J<3 THEN GOTO 2680
2670  NEXT J
2680  IF W6=6 THEN 2710
2690  IF I<4 THEN 2760
2700  GOTO 2730
```

20

```
2710 IF I(G THEN 2760
2720 IF (-4)*(-1-5)=0 THEN 2760
2730 PRINT"PRESS ANY KEY TO CONTINUE
2740 Z$=GET$
2750 IF Z$="" THEN GOTO 2740
2760 ENDPROC
2770 IF F9(J)(10 THEN P4$="  "
2780 GOTO 2810
2790 IF A9(J)(10 THEN P5$="  "
2800 GOTO 2620
2810 ENDPROC
2820 B=C:C=0
2830 IF FNA(100)(60 THEN GOTO 2850
2840 B1=1+RX(A):RX(A)=J:C=J%(FX(H),FX(A
2850 B1=FNA(B)C1=FNA(B)
2860 B1=B1+RX(A):C1=C1+RX(A)
2870 B=INT((ABS(B1-C1))/5)
2880 IF B()0 THEN 2950
2890 B=B+FNA(2)-1
2900 C=C+FNA(2)-1
2910 IF FNA(2)=2 THEN GOTO 2990
2920 IF RX(H))RX(A) THEN B=B+FNA(2)-1
2930 IF RX(A))RX(H) THEN C=C+FNA(2)-1
2940 GOTO 2990
2950 IF B)(1 THEN B=B+D
2960 IF C)(1 THEN C=C+D
2970 IF FNA(500))498 THEN B=B+FNA(3)
2980 IF FNA(500))498 THEN C=C+FNA(3)
2990 NX(H)=NX(H)+1:NX(A)=NX(A)+1
3000 NX(H,NX(H))=H
3010 NX(A,NX(A))=A
3020 MX(H,NX(H)-7)=B
3030 MX(H,NX(H)-7)=B
3040 MX(H,NX(H)+7)=C
3050 MX(H,NX(H)+14)=B
3060 RETURN
3070 DEF PROCPLAYCHECK
3080 FOR I=1 TO W6
3090 IF(OX(I,H2)-T)*(OX(I,A2)-T)=0
     THEN PROCGMPPLAY
3100 NEXT I
3110 ENDPROC
3120 DEF PROCX
3130 K1=4:K2=5:K1=3
3140 FOR I=1 TO D3
3150 FOR J=1 TO D3
3160 OX(I,J)=HX(I,J)
3170 NEXT I NEXT J
3180 ENDPROC
3190 DEF PROCSEMITEAM
3200 SB(I)=T9(J)
3210 ENDPROC
3220 DEF PROCX
3230 ON I GOTO 3250,3280,3310,3340,
3370,3400

3240 ENDPROC
3250 IF J=1 THEN HX(1,1)=T9(J)
3260 IF J=2 THEN HX(3,1)=T9(J)
3270 GOTO 3240
3280 IF J=1 THEN HX(4,1)=T9(J)
3290 IF J=2 THEN HX(2,1)=T9(J)
3300 GOTO 3240
3310 IF J=1 THEN HX(1,2)=T9(J)
3320 IF J=2 THEN HX(3,2)=T9(J)
3330 GOTO 3240
3340 IF J=1 THEN HX(3,3)=T9(J)
3350 IF J=2 THEN HX(1,3)=T9(J)
3360 GOTO 3240
3370 IF J=1 THEN HX(4,2)=T9(J)
3380 IF J=2 THEN HX(2,2)=T9(J)
3390 GOTO 3240
3400 IF J=1 THEN HX(2,3)=T9(J)
3410 IF J=2 THEN HX(4,3)=T9(J)
3420 GOTO 3240
3430 DEF PROCGMPPVAL
3440 IF OX(I,H2)()T THEN I=OX(I,A2)
3450 IF OX(I,H2)=T THEN I=OX(I,A2)
3460 ENDPROC
3470 PROCGMPREPLAY
3480 DEF PROCGMPGAMEPLAY
3490 CLS:PRINTA$(Z);" V. ";A$(Z):PRINT
3500 PROCDRAW:I=0:B4=0:B5=0:B6=0
3510 PROCSCRNDRAWTEAM:PROCDRTEAM
3520 Z3=0:I4=0:W1=0
3530 K4=DX(Z%(Z),ZX(Z))+30:
     W3=RX(T):W4=RX(Z)
3540 W3=W3+2+I%(FX(T),
     FX(Z)):W4=W4+2+I%(FX(Z),FX(T))
3550 FOR I=1TO D1:I%(EX(I)=0:NEXT I
3560 U1=0
3570 CLS:PRINT"THE REF BLOWS HIS
WHISTLE TO START GAME"
3580 FOR I=1TO K4
3590 Z1=T
3600 IF FNA(W3+W4))RX(T) THEN Z1=Z
3610 IF Z1=T THEN Z8=Z
3620 IF Z1=Z THEN Z8=T
3630 PROCTACKLE
3640 Z8$=" HAVE "
3650 PROCPOSSREG
3660 PRINTA$(Z1);Z8$;"POSSESSION":PRINT
3670 IF Z1=T THEN PROCPLAYAN
3680 IF Z1=Z THEN PROCRANPLAY
3690 J$=Z5$+T4$(B1)+26*PROCMOVEPRI
3700 PRINT PROCUIT
3710 Z4=Z1:Z3=T:I
3720 IF Z1=T THEN U1=U1+1:E%(A3)=E%(A3)+1
3730 IF Z2=T THEN PROCSCORCHAN
3740 IF I=22 THEN PROCHALTIM
3750 NEXT I
3760 H=T:A=Z
3770 PRINT"NOTHING ELSE OF SIGNIFICANCE
HAPPENS  DURING THE GAME"
3780 PRINT:PRINT"FINAL SCORE"
3790 PRINTA$(T);" ";B;" ";A$(Z);" ";C
3800 P2=B:P3=C:PROCCONTINUE
3810 IF X3=0 THEN GOTO 2990:ENDPROC
3820 IF B=C THEN 3850
3830 IF V=0 THEN ENDPROC
3840 GOSUB 2990:ENDPROC
3850 IF X5=1 THEN GOSUB
3860 Z3=0:I4=0:K4=15
3870 X5=1
3880 CLS:PRINT"EXTRA TIME BEING PLAYED"
3890 GOTO 3580
3900 X5=0
3910 CLS:PRINT"PENALTIES WILL DECIDE THE RESULT"
3920 J$=" SHOOTS WIDE"
3930 IF RND(1)).5 THEN B=B+1:J$=" SCORES FROM THE SPOT"
3940 J$=K8$(1+FNA(10))+J$:PROCMOVEPRI
3950 J$=" SHOOTS WIDE"
3960 IF RND(1)).5 THEN C=C+1:J$=" SCORES FROM THE SPOT"
3970 J$=Z9$(1+FNA(10))+J$:PROCMOVEPRI
3980 IF B=C THEN 3920
3990 PRINT"FINAL SCORE ":PRINTA$(T);" ";B;" ";A$(Z);" ";C
```

```
4000 P2=B:P3=C
4010 ENDPROC
4020 DEF PROCSCOUTREP
4030 D4=0
4040 IF (Z-S1)*(Z-S2)*
(Z-S3)*(Z-S4)=0 THEN D4=1
4050 IF D4=1
THEN J$="YOUR SCOUTS
REPORT ON "+A$+(Z):PROCMOVEPRI
4060 E=Z
4070 IF D4=1 THEN PROCCONTINUE
4080 PROCREP:ENDPROC
4090 DEF PROCTACTSEL
4100 CLS:PRINT"WHAT FORMATION
SHALL WE PLAY BOSS?"
```

```
4110 FOR F1=1TO3
4120 PROCFORM
4130 PRINTF1;" ";E9
4140 NEXT F1
4150 PROCZ:FX(T)=E9:PRINT
4160 PRINT"WHAT ARE THE DEFENCE PLANS BOSS?"
4170 FOR F1=1TO3
4180 PROCDEFTACT
4190 PRINTF1;" ";C$
4200 NEXT F1
4210 PROCZ:XX(T)=E9:PRINT
4220 PRINT"WHAT ATTACK PLANS GUV?"
4230 FOR F1=1TO3
4240 PROCATTACT
4250 PRINTF1;" ";C$
4260 NEXT F1
4270 PROCZ:ZX(T)=E9:PRINT
4280 PRINT"WHAT ABOUT MIDFIELD BOSS?"
4300 FOR F1=1TO3
4310 PROCMIDTACT
4320 PRINTF1;" ";C$
4330 NEXT F1
4340 PROCZ:ZX(T)=E9:PRINT
4350 PRINT"WHAT IF WE GET A FREEKICK UPFIELD BOSS?"
4360 FOR F1=1TO3
4370 PROCFREETACT
4380 PRINTF1;" ";C$
4390 NEXT F1
4400 PRINT"HOW DO WE DEFEND AGAINST A FREEKICK?"
4410 FOR F1=1TO3
```

```
4420 PROCFREEDEF
4430 PRINTF1;" ";C$
4440 NEXT F1
4450 PROCZ:X(T)=E9:PRINT
4460 PRINT"WHAT SHALL WE DO WITH
OUR CORNERS?"
4470 FOR F1=1TO3
4480 PROCCORNTACT
4490 PRINTF1;" ";C$
4500 NEXT F1
4510 PROCZ:VX(T)=E9:PRINT
4520 PRINT"WHAT ABOUT THEIR CORNERS?"
4530 FOR F1=1TO3
4540 PROCCORNDEF
4550 PRINTF1;" ";C$
4560 NEXT F1
4570 PROCZ:WX(T)=E9
4590 DEF PROCOPPTEAM
4600 CLS:PRINT"DO YOU WISH TO TYPE
IN THE OPPOSITION PLAYERS' NAMES?"
4610 INPUT"TYPE Y OR N "D$
4620 IF ASC(LEFT$(D$,1))=78 THEN
PROCPNAME:ENDPROC
4630 IF ASC(LEFT$(D$,1))<>89 THEN 4610
4640 FOR I=1TO12
4650 PRINT"ENTER NAME OF PLAYER ";I
IF I=1
PRINT CHR$(136);"--MAXIMUM OF 5 LETTERS-"
4660 INPUT Z9$(I)
4670 IF LEN(Z9$(I))>15 THEN PRINT"NAME
IS TOO LONG. RE-ENTER.":GOTO 4660
```

```
4680 NEXT I
4690 ENDPROC
4700 DEF PROCDETPOSS
4710 G1=FNA(10)
4720 IF G1(4 THEN Z2=1
4730 IF G1)17 THEN Z2=1
4740 IF G1)17 THEN ENDPROC
4750 IF G1)17 THEN ENDPROC
4760 Z2=1:ENDPROC
4770 DEF PROCSBRES
4780 IF Z4()1 THEN ENDPROC
4790 IF Z3()21 THEN ENDPROC
4800 Z8$=" REGAIN "
4810 ENDPROC
4820 DEF PROCPLAYRAN
4830 A3=FNA(10)+1:Z5$=K$(A3)
4840 IF G1)10 THEN Z6$=Z9$(FNA(10)+1)
4850 IF G1)10 THEN ENDPROC
4860 A4=FNA(10)+1
4870 IF A4>R3 THEN 4860
4880 Z6$=Z9$(A4)
4890 ENDPROC
4900 DEF PROCRANPLAY
4910 A3=FNA(10)+1:Z5$=Z9$(A3)
4920 IF G1)10 THEN Z6$=K$(FNA(10)+1)
4930 IF G1)10 THEN ENDPROC
4940 A4=FNA(10)+1
4950 IF A4>R8 THEN 4940
4960 Z6$=Z9$(A4):ENDPROC
4970 DEF PROCMOVEPRI
4980 IF LEN(J$)(=39 THEN PRINTJ$
4990 IF LEN(J$)(39 THEN PRINT
5000 IF LEN(J$)(=39 THEN ENDPROC
5010 FOR J=39TO1 STEP-1
5020 IF ASC(MID$(J$,J,1))=32 THEN PRINT
LEFT$(J$,J):J$=RIGHT$(J$,LEN(J$)-J):J=0
```

```
5030 NEXT J
5040 GOTO 4980
5050 ENDPROC
5060 DEF PROCSCORCHAN
5070 Z4=1:G3=FNA(7)
5080 IF B(18 THEN Z1%=Z6%
5090 IF B(7 THEN Z1%=Z5%
5100 ON B3 GOSUB 5120,5120,5120,5120,5160,5160,5250
5110 Z4=0
5120 G3=FNA(100)
5130 IF CX(YX(Z),XX(Z8))*100-G3+B4 THEN PROCGOAL:RETURN
5140 PROCA
```

```
5150    RETURN
5160    PRINTAS(21);" WIN A CORNER'
5170    IF Z1=T THEN Z18=K*(5+FNA(6))
5180    IF Z1=2 THEN Z19=Z9*(5+FNA(6))
5190    J$="FROM THE KICK THE BALL REACHES"+" "+Z1$
5200    PROCMOVEPR1
5210    G3=FNA(100)
5220    IF B%(Y%(23),X%(28)))100-G3+B6 THEN B6=B6+2:PROCGOAL:RETURN
5230    PROCA
5240    RETURN
5250    PRINT
5260    IF Z1=T THEN Z5%=Z9%(1+FNA(4))
5270    IF Z1=2 THEN Z5%=K*(1+FNA(4))
5280    J$=J$+" IS BROUGHT DOWN BY "+Z5%+". THE REF AWARDS "+A$(Z1)
5290    J$=J$+" A FREEKICK JUST OUTSIDE THE BOX":PROCMOVEPR1
5300    PRINT:PRINT"FROM THE FREEKICK "
5310    G3=FNA(100)
5320    IF B%(Y%(23),X%(28)))100-G3+B5 THEN B5=B5+2:PROCGOAL:RETURN
5330    PROCA
5340    RETURN
5350    DEF PROCHALTIM
5560    PRINT:PRINT"HALFTIME SCORE:"
5570    PRINTA$(T);" ";B;" ";A$(Z);" ";C
5580    PRINT"DO YOU WISH TO CHANGE TACTICS"
5390    INPUT "TYPE 'Y' OR 'N' "Z$
5400    IF ASC(LEFT$(Z$,1))<>78 AND ASC(LEFT$(Z$,1))<>89 THEN 5390
5410    IF ASC(LEFT$(Z$,1))=89 THEN PROCTACTSEL
5420    PROCSU%:ENDPROC
5430    DEF PROCREP
5440    PRINT"PROFILE ON ";A$(E):PRINT
5450    PROCPASTRES
5460    PRINT:F1=X%(E)
5470    PROCDEFTACT
5480    PRINT
5490    PRINT"IN DEFENCE THEY";C$:PRINT
5500    F1=VX(E):PROCATTACT
5510    PRINT"IN ATTACK THEY USE A";C$:PRINT
5520    F1=ZX(E):PROCMIDTACT
5530    PRINT"IN MIDFIELD THEY";C$:PRINT
5540    IF D4=0 THEN PROCCONTINUE:ENDPROC
5550    F1=TX(E):PROCFREETACT
5560    PRINT"IN FREEKICKS AROUND THE BOX THEY USE A":PRINTC$
5570    F1=UX(E):PROCREEDEF
5580    PRINT"AND DEFENDING AGAINST FREEKICKS THEY":PRINTC$:PRINT
5590    F1=TX(E):PROCCORNTACT
5600    PRINT"FROM A CORNER THEY";C$
5610    F1=WX(E):PROCCORNDEF
5620    PRINT"WHEN FACED WITH A CORNER THEY":PRINTC$:PRINT
5630    F1=FX(E):PROCFORM
5640    PRINT"THEY NORMALLY PLAY";C$;"FORMATION":PRINT
5650    PROCCONTINUE
5660    ENDPROC
5670    DEF PROCFORM
5680    IF F1=1 THEN C$=" A 4-3-3 "
5690    IF F1=2 THEN C$=" A 4-4-2 "
5700    IF F1=3 THEN C$=" A 4-2-4 "
5710    ENDPROC
5720    DEF PROCDEFTACT
5730    IF F1=1 THEN C$=" USE A SWEEPER "
5740    IF F1=2 THEN C$=" INTERCEPT PASSES "
5750    IF F1=3 THEN C$=" SHADOW ATTACKERS "
5760    ENDPROC
5770    DEF PROCATTACT
5780    IF F1=1 THEN C$=" FAST BREAK "
5790    IF F1=2 THEN C$=" EARLY CROSS "
5800    IF F1=3 THEN C$=" SLOW BUILD-UP "
5810    ENDPROC
5820    DEF PROCMIDTACT
5830    IF F1=1 THEN C$=" TACKLE HARD "
5840    IF F1=2 THEN C$=" MARK TIGHTLY "
5850    IF F1=3 THEN C$=" FIND SPACE "
5860    ENDPROC
5870    DEF PROCFREETACT
5880    IF F1=1 THEN C$=" DIRECT SHOT "
5890    IF F1=2 THEN C$=" CHIP TO THE FAR POST "
5900    IF F1=3 THEN C$=" TEE-UP FOR SHOT "
```


23

```
5910 ENDPROC
5920 DEF PROCFREEDER
```

```
5930 IF F1=1 THEN C$=" MAKE A WALL "
5940 IF F1=2 THEN C$=" MARK MAN-TO-MAN "
5950 IF F1=3 THEN C$=" RUSH THE KICKER "
5960 NEXT I
5970 DEF PROCCORNTACT
5980 IF F1=1 THEN C$=" PLAY IT SHORT "
5990 IF F1=2 THEN C$=" AIM FOR THE FAR POST "
6000 IF F1=3 THEN C$=" AIM FOR THE NEAR POST "
6010 ENDPROC
6020 DEF PROCCORNDEF
6030 IF F1=1 THEN C$=" MOVE OUT FAST "
6040 IF F1=2 THEN C$=" RELY ON THE GOALKEEPER "
6050 IF F1=4 THEN C$=" USE CLOSE MARKING "
6060 ENDPROC
6070 DEF PROCZ
6080 INPUT "ENTER A NO. BETWEEN 1 & 3":E$
6090 IF LEN(E$)()1 THEN 6140
6100 IF ASC(E$)(49 THEN 6140
6110 IF ASC(E$))51 THEN 6140
6120 E9=VAL(E$)
6130 ENDPROC
6140 PRINT"PLEASE RE-ENTER"
6150 GOTO 6080
6160 ENDPROC
```

```
6170 DEF PROCOPPNNAME
6180 FOR I=1TO12
6190 Z9$(I)="NO."+STR$(I)
6200 NEXT I
6210 Z9$(1)="THEIR GOALKEEPER "
6220 ENDPROC
6230 DEF PROCGOAL
6240 PRINT
6250 B4=B4+2.5:J$=Z1$+A2$(FNA(9)):PROCMOVEPRI
6260 PROCSCORE:PROCSUB
6270 IF I=K4 THEN ENDPROC
6280 PRINT"FROM THE KICK-OFF"
6290 ENDPROC
6300 DEF PROCSCORE
6310 PRINT"IT'S A GOAL! "+A$(Z1)+" HAVE SCORED":PROCMOVEPRI
6320 IF Z1=T THEN B=B+1
6330 IF Z1=Z THEN C=C+1
6340 D2=1*2
6350 IF RND(1)).5 THEN D2=D2-1
6360 PRINT
6370 Z$=" MINUTES"
6380 IF D2=1 THEN Z$=" MINUTE"
6390 PRINT"SCORE AFTER ":D2;Z$
6400 PRINT:PRINT A$(T);" ";B;" ";A$(Z);" ";C
6410 ZZ=1:ENDPROC
6420 DEF PROCA
6430 G3=FNA(9):Z1$=A1$(G3)
6440 IF Z8=T THEN H$=" "+K$(1+FNA(4))
6450 IF Z8=Z THEN H$=" "+Z9$(1+FNA(4))
6460 IF G3(4 THEN Z1$=Z1$+H$
6470 IF Z8=T THEN H$=" "+K$(1)
6480 IF Z8=Z THEN H$=" "+Z9$(1)
6490 IF Z8=T THEN H$=" "+K$(1)
6500 IF G3(6 THEN Z1$=Z1$+H$:PROCMOVEPRI:ZZ=1:ENDPROC
6510 J$=Z1$:PROCMOVEPRI:ENDPROC
6520 DEF PROCSUB
6530 IF W1=1 THEN PROCCONTINUE:ENDPROC
6540 PRINT"PRESS 'S' TO BRING ON SUBSTITUTE":PRINT"          ANY OTHER KEY TO CONTINUE"
6550 Z$=GET$
6560 IF Z$="" THEN 6550
6570 IF ASC(Z$)()83 THEN ENDPROC
6580 CLS:W1=1
6590 W1=1
6600 FOR J=2TO11:PRINT:J:PRINT;" ";K$(J)NEXT J
6610 PRINT"ENTER A NO. FROM 2 TO 11":PRINT"TO SHOW THE PLAYER TO BE SUBSTITUTED"
6620 INPUT K
6630 IF K)11 THEN 6620
6640 IF K(2 THEN 6620
6650 PRINT:J$=K$(K)+" TRUDGES OFF TO BE REPLACED BY "+K$(12):PROCMOVEPRI
6660 Z$=K$(K):K$(K)=K$(12):K$(12)=Z$
6670 W3=W3+(-(U1/10)+EX(K))*2
```

```
6680 ENDPROC
6690 DEF PROCPASTRES
6700 IF NX(E)=0 THEN ENDPROC
6710 PRINT!PRINT"RESULTS SO FAR":PRINT
6720 FOR I=1TONX(E)
6730 PRINTA$(E);" ";MX(E,I+7);" ";A$(MX(E,I));" ";MX(E,I+14)
6740 NEXT I
6750 PROCJ!PROCCONTINUE
6760 ENDPROC
6770 DEF PROCSECSTAGE
6780 CLS!PRINT"GROUPS FOR THE 2ND. STAGE ARE :-":PRINT
6790 FOR I=1TO2
6800 PRINT"GP. ";CHR$(64+I);TAB(20);"GP. ";CHR$(66+I)
6810 PRINT
6820 FOR J=1TO3
6830 PRINTA$(HX(I,J));TAB(20);A$(HX(I+2,J))
6840 NEXT J
6850 PRINT
6860 NEXT I
6870 ENDPROC
6880 DEF PROCSECFIXT
6890 W6=4:TD1=27
6900 H2=1:A2=2:PROCSECRES
6910 H2=3:A2=1:PROCSECRES
6920 H2=2:A2=3:PROCSECRES
6930 ENDPROC
6940 DEF PROCSECRES
6950 PROCJ!PROCPLAYCHECK
6960 CLS!PRINT"RESULTS FOR ";D1;" JUNE '82"
6970 PRINT
6980 FOR I=1TO4
6990 H=HX(I,H2):A=HX(I,A2)
7000 IF H>T THEN B=P3!C=P3!GOTO 7020
7010 IF T>A THEN B=P3!C=P2!GOTO 7030
7020 GOSUB 2820
7030 PRINT"GP. ";CHR$(I+64);" ";A$(H);" ";B;" ";A$(A);" ";C
7040 NEXT I
7050 IF D1=29 THEN PROCCONTINUE!PROCTABLE
7060 PRINT
7070 IF D1=29 THEN ENDPROC
7080 PRINT"PRESS 'L' TO SHOW LEAGUE TABLES":PRINT"     ANY OTHER KEY TO CONT
INUE"
7090 Z$=GET$
7100 IF Z$="" THEN GOTO 7090
7110 IF Z$="L" THEN PROCTABLE
7120 D1=D1+1!ENDPROC
7130 DEFPROCJ
7140 FOR I=1TO4
7150 FOR J=1TO3
7160 OX(I,J)=HX(I,J)
7170 NEXT J!NEXT I
7180 ENDPROC
7190 DEF PROCSEMI
7200 CLS!PRINT"SEMI-FINALS":PRINT"===  ======"
7210 FOR I=1TO4
7220 PRINT
7230 NEXT I
7240 PRINTA$(S8(1));TAB(16);"V.       ";A$(S8(3))
7250 FOR I=1TO4
7260 PRINT
7270 NEXT I
7280 PRINTA$(S8(2));TAB(16);"V.       ";A$(S8(4))
7290 FOR I=1TO6
7300 PRINT
7310 NEXT I
7320 PROCCONTINUE
7330 ENDPROC
7340 DEF PROCSEMI PLAY
7350 CLS!PRINT"BARCELONA 8th JULY 1982"!PRINT
7360 PRINT"SEMI-FINAL":PRINT
7370 PRINTA$(S8(1));" V. ";A$(S8(3))
7380 X1=1
7390 PROCWAIT
7400 X1=S8(I)!X2=S8(3)
```

25

```
7410 PROCR
7420 CLS:PRINT"SEVILLE 8th JULY 1982":PRINT
7430 PRINT"SEMI-FINAL":PRINT
7440 E2=0:E1=0
7450 PRINTA$(S8(2));" V. ";A$(S8(4))
7460 PROCWAIT
7470 X1=S8(2):X2=S8(4)
7480 PROCR
7490 ENDPROC
7500 DEF PROCB
7510 FOR I=1TO90
7520 IF RND(1))86/90 THEN PROCD
7530 IF I=45 THEN PROCE
7540 IF I/10=INT(I/10) THEN PROCF
7550 NEXT I
7560 IF E1=E2 THEN PROCG
7570 PRINT"FINAL SCORE"
7580 PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2
7590 ENDPROC
7600 DEF PROCC
7610 W5=W5+1
7620 IF V=1 THEN ENDPROC
7630 IF E1)E2 THEN N1(W5)=X1
7640 IF E2)E1 THEN N1(W5)=X2
7650 ENDPROC
7660 DEF PROCD
7670 R7=RND(1)
7680 CLS:R9=RX(X1)/(RX(X1)+RX(X2))
7690 IF R7<R9 THEN 7670
7700 IF R7(R9 THEN J$=A$(X1)+" HAVE SCORED AFTER "+STR$(I)+" MINUTES"
7710 IF I=1 THEN J$=LEFT$(J$,LEN(J$)-1)
7720 IF R7(R9 THEN PROCMOVE:PRI
7730 IF R7(R9 THEN E1=E1+1
7740 IF R7)R9 THEN J$=A$(X2)+" HAVE SCORED AFTER "+STR$(I)+" MINUTES"
7750 IF R7)R9 THEN PROCMOVE:PRI
7760 IF R7)R9 THEN E2=E2+1
7770 PROCWAIT:ENDPROC
7780 DEF PROCE
7790 PRINT:PRINT"HALF TIME SCORE!"
7800 PRINT:PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2:PRINT
7810 PROCWAIT:ENDPROC
7820 DEF PROCF
7830 CLS:PRINT"SCORE AFTER ";I;" MINUTES ";"!"
7840 PRINTA$(X1);" ";E1;" ";A$(X2);" ";E2
7850 PROCWAIT:ENDPROC
7860 DEF PROCS
7870 CLS:PRINT"AFTER EXTRA TIME"
7880 R4=FNA(2)
7890 IF R4=1 THEN E1=E1+FNA(3)
7900 IF R4=2 THEN E2=E2+FNA(3)
7910 PROCWAIT:ENDPROC
7920 DEF PROCFINAL
7930 V=1:CLS:PRINT"MADRID 11th JULY 1982"
7940 FOR I=1TO6
7950 PRINT
7960 NEXT I
7970 PRINT"CUP FINAL":PRINT"=== ====="
7980 PRINTA$(N1(1));" V. ";A$(N1(2))
7990 PROCWAIT:PROCWAIT
8000 CLS:E1=0:E2=0:X1=N1(1):X2=N1(2)
8010 IF X1=T THEN Z=X2:PROCGAMEPLAY:E1=B:E2=C:GOTO 8040
8020 IF X2=T THEN Z=X1:PROCGAMEPLAY:E1=C:E2=B:GOTO 8040
8030 PROCB:PROCC
8040 ENDPROC
8050 DEF PROCR
8060 IF X1=T THEN Z=X2:PROCGAMEPLAY:E1=B:E2=C:PROCC:GOTO 8090
8070 IF X2=T THEN Z=X1:PROCGAMEPLAY:E1=C:E2=B:PROCC:GOTO 8090
8080 PROCB:PROCC
8090 NX(X1)=NX(X1)+1
8100 MX(X1,6)=X2:MX(X1,13)=E1:MX(X1,20)=E2
8110 NX(X2)=NX(X2)+1
8120 MX(X2,6)=X1:MX(X2,13)=E2:MX(X2,20)=E1
8130 IF (X1=T)*(X2=T)()0 THEN PROCCONTINUE
8140 ENDPROC
```

26

Ace pilots only need apply for this little excursion into the wild blue yonder. Well, it's not really the flying you have to worry about. It's getting your undercarriage planted firmly back on the ground that's the problem.

You must try to land your ancient fighter plane in the middle of a city. To do this you must create a makeshift runway by bombing the skyscrapers. But you are running out of fuel — so your time is very limited.

BOMBER

BY JANEK SIRRS

RUNS ON A BBC MODEL A IN 16K

```
10 REM *** BOMBER by J.Sirrs, 1982 ***
20 HISCORE%=0
30 MODE5:PROCinit:PROCtitle:MODE4:PROCinit:'&FE00=&10200A
40 PROCscreen
50 PX%=PX%+1:IF ?FN5'PX%+2,PY%,N%)=126THENPROCcrash:GOTO370
60 IFPX%=40ANDPY%>2%?THENPRINTTAB(PX%-1,PY%)":    ":PX%=0:PY%=PY%+1
70 IFPX%=37ANDPY%=29THENPROCland:GOTO40
80 IFPX%=0OD%T090 ELSEPRINTTAB(PX%-1,PY%)" ":PLANE%
90 IX%=INKEY(0):IFIX%>0ANDBOMB%=0PROCcreatebomb
100 IFBOMB%=1THENPROCmovebomb
110 IFBOMB%=1THENPROC1and:SCORE%:FORL%=1TO400:NEXTL%:GOTO50
120 DEFPROCcreatebomb
130 BOMB%=0:BX%=PX%:BY%=PY%
140 ENDPROC
150 DEFPROCmovebomb
160 FORL%=1TO2:IFBY%=PY%ANDBX%=PX%GOTO170 ELSEPRINTTAB(BX%,BY%)" "
170 BY%=BY%+1:IF ?FN5(BX%,BY%,N%)=126THENPROCexplosion:SCORE%=SCORE%+1:GOTO210
180 IFBX%>29THENL%=3:BOMB%=0:GOTO210
190 IFBOMB%=0THENL%=3:GOTO210
200 PRINTTAB(BX%,BY%)CHR$(227):SOUND1,-15,BY%*2,1
210 NEXTL%:ENDPROC
220 DEFPROCexplosion
230 FORX%=0TOR%0(4):SOUND0,-15,BY%*E%,1:IFBY%>29THENE%=5:NEXTE%:L%=3:BOMB%=0:END
PROC
240 PRINTTAB(BX%,BY%+E%)" ":NEXTE%
250 BOMB%=0:L%3%THENPROC
260 DEFPROC1and
270 FORL%=1TO50:SOUND1,-15,L%,0:NEXTL%
280 FORL%=1TC20:IFL%/2=INT(L%/2)THENCH%=228ELSECH%=229
290 PRINTTAB(35,29)CHR$(CH%):FORD%=1TO750:NEXTD%:NEXTL%
300 PRINTTAB(12,12)" !100 BONUS POINTS:FORL%=1TO500:NEXTL%:PRINTTAB(12,12)"
                       ":SCORE%=SCORE%+100
310 PRINTTAB(35,29)" "       :CHR$(30)
320 PX%=29:FORPX%=35TO29:PRINTTAB(PX%-1,PY%)" ":PY%=PY%-.2:PRINTTAB(PX%,PY%)
1PLANE%:FORD%=1TO500:NEXTD%:NEXTPX%
330 SK%=SK%+1:PX%=1:BY%=3:ENDPROC
340 DEFPROCcrash
350 FORL%=1TO20:VDU19,0,RND(15),0,0,0,19,1,RND(15),0,0,0:SOUND0,-15,RNO(3)+3,1
:NEXTL%
360 VDU19,0,6,0,0,0,19,1,0,0,0:ENDPROC
370 CLS:VDU19,0,0,0,0,0,19,1,4,0,0,0
380 PRINT''"Oh dear you appear to have crashed your"
390 PRINT''''"plane!!!!"
400 PRINT''"Your final score was :- "1SCORE%" points."
410 IFSCORE%>HISCORE%THENIF$CORE%=SCORE%:PX%=1:PY%=3:BOMB%=0
415 PRINT''"Wow! You've just got the best score yet."
420 PRINT''"Today's high score is :- "1HISCORE%:SCORE%=0:PX%=1:PY%=3:BOMB%=0
430 PRINTTAB(5,1)!"Another game (Y/N)?"
440 A$=GET$:IFA$="Y"GOTO30ELSEGOTO450
450 MODE7:END
460 DEFPROCscreen
470 CLS:VDU19,0,<,0,0,0,19,1,7,0,0,0
480 PRINTTAB(0,1)"SCORE:"SCORE%1TAB(20,1)"HI-SCORE:"1HISCORE%
490 PRINTTAB(0,30)STRIN$(40,CHR$(233))!CHR$(30)
500 FORL%=3TO36:BH%=RNO(3%3)+29:PRINTTAB(L%,29)!!FORX%=TOBH%:PRINTCHR$(231)!CN
R%(1)!CHR$(8)!!SOUND1,-15,BH%,1:NEXTX%:PRINTCHR$(230)!NEXTL%
510 PRINTTAB(PX%,BX%)1PLANE%
520 ENDPROC
530 DEFPROCinit
```

27

```
540 VDU23,224,24,28,31,0,0,0,0,0
550 VDU23,225,63,5,255,255,15,2,7,7
560 VDU23,228,228,4,24,252,244,4,4,0
570 VDU23,227,126,60,24,60,60,60,60,24
580 VDU23,228,60,60,24,126,153,36,66,129
590 VDU23,229,189,189,153,126,24,36,66,129
600 VDU23,230,0,24,60,126,126,90,90,126
610 VDU23,231,126,90,90,90,126,126,90,90,12
620 VDU23,232,0,0,50,126,126,90,90,126
630 VDU23,233,255,255,255,255,255,255,255,255
640 PLANE$=CHR$(224)+CHR$(225)+CHR$(226)
650 SCOREX=0:PX%=1:PY%=3:BX%=0:BY%=0:BOMBX=0:NX%=4
660 DEF FNS(X,Y,N)=HIMEM+(Y*40+X)*8+N
670 ENDPROC
680 DEFPROCinst
690 CLS:VDU19,3,9,0,0,0:PRINTTAB(5,14)"Do you need instructions (Y/N) ?"
700 A$=GET$:IFA$="Y"GOTOTD710 ELSEIFA$="N"GOTO 790 ELSEGOTO700
710 CLS:VDU19,1,3,0,0,0:CDLDUR1:PRINTTAB(13,1)I"D M B E R"
720 PRINT''" Try to land your ancient fighter plane"
730 PRINT" by destroying all the city skyscrapers"
740 PRINT" to create a makeshift runway"''
750 PRINT'" Bombs are dropped by pressing any key."
760 PRINT'" WARNING - your fuel is limited'"
770 PRINT'''''''' PRESS ANY KEY TO START YOUR FLIGHT"
780 A$=GET$
790 CLS:PRINTTAB(5,12)I"What is your skill level (1-3)?"
800 A$=GET$:SX%=VAL(A$):IFSK%>3ORSK%<1GOTOTD790 ELSEENDPROC
810 DEFPROCtitle
820 CLS:VDU19,0,0,0,0,0,19,3,2,0,0,0
830 TL%="D M B E R":FORL%=1TDLEN(TL%):COLOUR3:PRINTTAB(L%+3,10)I" :PLANE$:F
ORBZ%=1TD4
840 COL.DUR2:PRINTTAB(L%+5,11+B%)I"ICHR$(:10):CHR$(8)ICHR$(227):SOUND1,-15,B%+
2,1INEXTBZ%:COLDUR1:PRINTTAB(L%+5,16)IMID$(TL%,L%,1)ICHR$(8):SOUND0,-15,5,1:FDRD%=1TO100
INEXTD%:NEXTL%
850 FORL%=1TD12000:NEXTL%:ENDPROC
```

S.O.S MISSION

BY NIGEL STUART

RUNS ON A 4000 SERIES PET

"Welcome captain. You are now in charge of the space fleet's newest most advanced battlecruiser. Your mission, should you accept it, is to pilot this craft into a tunnel on the enemy planet and destroy as many of their underground bases, ammunition and fuel dumps as possible . . ."

This is a version of arcade Scramble and all the rules of the video version apply. You gain extra fuel for your craft by bombing the fuel and ammunition dumps. Full instructions are included in the program.

To alter the program to run on a 3000 or 2000 series Pet the peek of find which key is being pressed must be changed. This is peek 151 and the value is held in variable Q. The movement of the tunnels is held in B$, C$, D$, E$, F$, and G$.

IN 16K

```
1 PRINT"2"
10 POKE59467,16 POKE59466,7
P=59464 POKEP,0
11 DIMS$(10) DIMS(10)
15 FOR X=1 TO 10 S(X)=0 NEXTX
20 DIME(10)
30 E(1)=33230
31 E(2)=33189
32 E(3)=33145
34 E(4)=33150
35 E(5)=33179
36 E(7)=33303
37 E(6)=33262
38 E(8)=33197
39 E(9)=33233
40 E(10)=33151
90 A$="" B$="" C$="" D$="" E$=""
F$="" G$="" FORF=1TO200 NEXTF
91 K=0
95 GOSUB 6000
100 PRINT"◙▶▶▶▶▶▶▶▶▶▶S.O.S. MISSION"
110 PPINT"▶▶▶▶▶▶▶▶◀"
120 SH=33218 S3=33244 S5=33204
130 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦"
140 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦ FUEL ┃ ┃ SCOPE ┃ ┃ AMO ┃"
150 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦┃"
160 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦┃ ┃ ┃"
170 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦┃"
300 FU=999 SC=0 AM=30
800 A$=""
805 AA$=""
810 B$=B$+""
315 B$=B$+""
816 C$=C$+""
820 C$=C$+""
825 C$=C$+""
827 C$=C$+""
830 D$=D$+""
835 D$=D$+""
837 D$=D$+""
840 E$=E$+""
845 E$=E$+""
847 E$=E$+""
850 F$=F$+""
855 F$=F$+""
857 F$=F$+""
860 G$=G$+""
865 G$=G$+""
867 G$=G$+""
970 B$=A$+B$
971 C$=AA$+C$
972 D$=AA$+D$
973 E$=AA$+E$
974 F$=AA$+F$
975 G$=A$+G$
980 PRINT"◙▦▦▦▦▦▦"
981 PRINT"◙▦▦▦▦▦▦┃"
982 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦"
983 PRINT"◙▦▦▦▦▦▦▦▦▦▦▦▦▦▦▦"
```

29

```
990 FOR ZX=1 TO LEN(B$)-42
991 IF S5=38 THEN GOSUB 2700
992 S9=S7 S7=S6-S8 IFS6=38 THEN ?OSU82751
993 S4=S3-S5 S5=S5+2 S8=S8+2
994 LL=INT(RND(0)*3)-1 S7=S7+LL*40
995 POKES4,115 POKES34,S4+1,246 POKES34+2,
   32 POKES4+1 15
996 IF K>0 THEN POKES7,60 POKES7+1,92
   POKES7+2,32 POKES7+1,32
999 IF K>0 THEN POKES7,60 POKES7+1 92
   POKES7+2 32 POKES7+1 32
```

```
1000 B$=MID$(B$,2,LEN(B$
1010 C$=MID$(C$,2,LEN(C$)
1020 D$=MID$(D$,2,LEN(D$
1030 E$=MID$(E$,2,LEN(E$)
1040 F$=MID$(F$,2,LEN(F$)
1050 G$=MID$(G$,2,LEN(G$)
1110 PRINT"?????"
1120 PRINTMID$(B$,1,39)
1130 PRINTMID$(C$,1,39)
1140 PRINTMID$(D$,1,39)
1145 PRINT"??"
1150 PRINTMID$(E$,1,39)
1160 PRINTMID$(F$,1,39)
1170 PRINTMID$(G$,1,39)
```

```
1180 A1=PEEK(SH) A2=PEEK(SH+1) A3=PEEK(SH+2)
1300 POKESH,108 POKESH+1,111 POKESH+2,100 POKESH+3,32
1310 POKEP,210 POKEP,100 POKEP,200 POKEP,240 POKEP,0 S2=SH
1320 IF B>1 THEN SH=SH-1 B=B-1
1350 IF A1=102 OR A1=83 OR A1=65 OR A1=246 THEN 2000
1360 IF A2=102 OR A2=83 OR A2=65 OR A2=246 THEN 2000
1370 IF A3=102 OR A3=83 OR A3=115 OR A3=246 THEN 2000
1380 IF A1=86 OR A2=86 OR A3=86 THEN 2000
1390 IF A1=60 OR A2=60 OR A3=60 THEN 2000
1400 PPINT"????????????????????????FU
1410 PRINT"????????????????????????FU
1420 PRINT"????????????????????????AM
1490 PRINT"????????????????????????
```

```
1440 POKEE(INT(RND(0)*4)*1)+1,96
1450 POKEE(INT(RND(0)*10)*1),32
1460 POKEP+1,32
1500 Q=PEEK(151)
1510 IF Q=50 THEN SH=SH-40 GOSUB2100
1520 IF Q=18 THEN SH=SH+40 GOSUB2100
1530 IF Q=41 THEN SH=SH+2 GOSUB2100 B=B+
1540 IF B>22 THEN B=B-1 SH=SH-1
1550 IF Q=48 THEN PP=0 GOSUB2200
1580 IF Q=32 THEN GOSUB2400
```

```
1600 FU=FU-5 THEN 2000
1610 IF FU<0 THEN 2000
1999 SC=SC+1
2000 NEXTZX
1005 A$="" 9$=""
2006 K=K+1
2010 GOTO810
2100 POKEE,32 POKESC+1,33 POKESC2+2,32 POKESC2+3,32
2110 A1=PEEK(SH) A2=PEEK(SH+1) A3=PEEK(SH+2)
2210 POKESH,108 POKESH+1,111 POKESH+2,100
```

```
2220 RETURN
2300 IF AM=1 THEN RETURN
2301 AM=AM-1
2305 FOR Z=S2+4 TO SC+10
2310 IF PEEK(Z)=102 THEN PP=1 GOTO2390
2311 IF PEEK(Z)=83 THEN 2800
2312 IF PEEK(Z)=65 THEN 2900
2313 IF PEEK(Z)=115 THEN 4000
2314 IF PEEK(Z)=129 THEN 3000
2315 IF PEEK(Z)=134 THEN 3400
2316 IF PP=1 THEN 2390
2320 POKEZ,46 POKEP,140 POKEP,142
2330 POKEZ,46 POKEP,120 POKEP,200
2340 POKEP,0 POKEZ,32
2400 NEXTZ RETURN
2400 IF AM=1 IF AM>0 THEN RETURN
```

```
2410 Z=SH+3
2420 Z=Z+40
2421 IF PEEK(Z)=102 THEN 2500
2422 IF PEEK(Z)=83 THEN 2800
2423 IF PEEK(Z)=65 THEN 2900
2424 IF PEEK(Z)=115 THEN 4000
2425 IF PEEK(Z)=129 THEN 3000
2426 IF PEEK(Z)=134 THEN 3400
2430 POKEZ,81 POKEP,100
2435 FORZZ=1TO4 POKEP,200 POKEP 190 POKEP 110 NEXTZZ
```

```
2440 FORF,0 FORZ=1TO20 NEXTZZ POKEZ 32
2490 GOTO 2420
2500 RETURN
2700 POKES4 32 POKES4+1,32 POKES4+2 32 POKES4+3 32 POKES4+4 32
2710 S5=0 L=INT RND 0 +3)
2720 S3=33164+(L*40)
2750 RETURN
2751 S8=0 L=INT(RND 0 +3)
2752 S6=33164+(L*40)
2753 POKES9 32 POKES9+1,32 POKES9+2 32 POKES9+3 32 POKES9+4 32
2755 RETURN
2800 FOR F=1 TO 25
2810 J=INT(RND(0)*4)
2820 POKEP,J*25 IF J=1 THEN POKEZ,86
2830 IF J=2 THEN POKEZ,214
2840 IF J=3 THEN POKEZ,32
2850 POKEZ,J+20
2860 NEXTF POKEP,0 SC=SC+1000 RETURN
2900 FOR X=1 TO 25
2910 J=INT(RND(0)*4)+1
2920 POKEP,J*10 IF J=1 THEN POKEZ,87
2930 IF J=2 THEN POKEZ,215
2940 IF J=3 THEN POKEZ,32
2950 POKEP,J*20+50 NEXTX POKEP,0 SC=SC+500 RETURN
3000 POKES2+3,32
3005 FOR Z=1 TO 10
3010 POKEP,210 POKES2,32 POKES2+1,32 POKES2+2,160 POKEP,0
3015 POKEP,170 POKES2,32 POKES2+1,32 POKES2+2,102 POKEP,0
3020 POKEP,180 POKES2,32 POKES2+1,102 POKES2+2,32 POKEP,0
3025 POKEP,250 POKES2,32 POKES2+1,102 POKES2+2,32 POKEP,0
3030 POKEP,240 POKES2,160 POKES2+1,32 POKES2+2,32 POKEP,0
3035 POKEP,125 POKES2,102 POKES2+1,32 POKES2+2,32 POKEP,0
3040 NEXTZ
3050 POKES2,32 POKES2+1 32 POKES2+2,
3100 FOR X=32768TO33767STEP4
3110 Z=PEEK(X)
3120 IF Z>128 THENZ=Z+128 GOTO3140
3130 IF Z>128 THENZ=Z-128
3140 POKEX,Z NEXTX NEXTF PRINT"⊃"
3250 FORF=1TO800 NEXTF RETURN
3260 GOTO 4500
3300 FOR X=1 TO 50
3310 J=INT(RND(0)*4)
3320 IF J=1 THEN POKEZ,1 POKEP,210 POKEP,190
3330 IF J=3 THEN POKEZ,129 POKEP,170 POKEP,240
3340 NEXTX
3350 AM=AM+10
3390 RETURN
3400 FOR X=1 TO 50
3410 J=INT(RND(0)*4)
3420 IF J=1 THEN POKEZ,134 POKEP,150 POKEP,110
3430 IF J=3 THEN POKEZ,6 POKEP,110 POKEP,130
3440 NEXTX,
3450 FU=FU+100 RETURN
4000 FORX=1 TO 10
4005 POKEP,INT(RND(0)*250) POKEP+1,32
4010 J=INT(RND(0)*4)
4020 POKEP,J*20 IF J=1THENPOKEZ-41 43
4030 IFJ=2THENPOKEZ-41,171
4040 IFJ=3THENPOKEZ-41,32
4060 POKEP,J*25 IFJ=1THENPOKEZ-39,43
4070 IFJ=2THENPOKEZ-39,171
4080 IFJ=3THENPOKEZ-39,32
4100 POKEP,J*15 IFJ=1THENPOKEZ+39,43
```

```
4110 IFJ=2THENPOKEZ+39,171
4120 IFJ=3THENPOKEZ+39,32
4140 POKEZ,J*10:IFJ=1THENPOKEZ+41,43
4150 IFJ=2THENPOKEZ+41,171
4160 IFJ=3THENPOKEZ+41,32
4170 NEXTZ:POKEZ,0
4180 POKEZ-39,32:POKEZ-41,32:POKEZ+41,32:POKEZ+39,32:POKE...
4190 S5=0:L=INT(RND(0)*3)
4200 S3=39164+(L*40):SC=SC+250
4210 RETURN
4500 REM ****** END ******
4501 GETN$:PPRINT"◆"N$:IF N$<>"" THEN 4501
4510 PRINT"◆"
4520 PRINT"▶▶▶▶▶▶▶▶▶▶▶▶GAME OVER"
4530 PRINT"▶▶▶▶▶▶▶▶▶▶▶"
4540 PRINT"◆◆◆◆◆◆◆◆◆◆◆◆YOU SCORED "SC
4550 FORX=1TO10:IFSC>S(X)THEN4570
4560 NEXTX:GOTO4700
4570 PRINT"◆◆◆◆◆◆◆◆◆◆◆PLEASE ENTER YOUR NAME FOR THE "
4580 PRINT"◆◆◆◆◆◆◆◆◆◆◆SCORE-TABLE.";
4590 PRINT"◆"
4600 INPUTS$(X):S(X)=SC
4610 IF LEN(S$(X))>12 THEN 4570
4700 FOR F=1 TO 800:NEXTF:PRINT"◆"
4710 PRINT"▶▶▶▶▶▶▶▶▶YOU JUST SCORED"SC
4720 PRINT"◆◆"
4730 FORX=1TO10
4740 PPRINT"▶▶▶▶▶▶▶"S(X)"   "S$(X)
4750 POKEP,X*20
4760 FOR Z=1 TO 90:NEXTZ
4800 NEXTX
4805 POKEP,0
4810 PRINT"◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆PRESS RETURN"
4820 IF PEEK(151)<>27 THEN 4820
4900 GOTO90
5000 END
6000 REM ****** START ******
6001 GETN$
6005 GOTO 7010
6010 RESTORE:PRINT"◆":POKE59458,100
6015 PPRINT"◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆◆"
6020 READZ#:PEEKZZ:POKEP,ZZ
6025 GETN$:IFN$<>"" THEN 7500
6030 IF Z#="+" THEN 6980
6050 PRINT#
6060 PPRINT#
6100 FOR X=1 TO 20:POKEP,ZZ:POKEP,ZZ+10:NEXTX
6110 FOR X=1 TO 10:POKEP,ZZ+10:POKEP,ZZ-10:NEXTX
6120 POKEP,0:FORX=1TO500:NEXTX
6200 GOTO 6020
6980 POKEP,0:POKE59458,30
6990 POKE59458,30
7000 GOTO6000
7010 PRINT"◆":POKE59458,100:FORZ=1TO250:NEXTZ
7015 FOR X=1 TO 24
7017 GETN$:IFN$<>"" THEN 7500
7020 PRINTTAB(10)"S.O.S. MISSION ?":NEXTZ:POKEP,0
7030 FOR Z=1 TO 100 STEP10:POKEP,Z:NEXTZ:POKEP,0
7040 FOR Z=1 TO 40:NEXTZ
7050 PRINTTAB(10)"S.O.S. MISSION?"
7060 FOR Z=100 TO 1 STEP-1:POKEP,Z:NEXTZ:POKEP,0
```

32

```
7070 FOR Z=1 TO 40 NEXTZ
7100 PRINTTAB(11)" S.O.S. MISSION "
7110 FOR Z=10 TO 200 STEP-14 POKEP.C NEXTZ POKEP,0
7120 FOR Z=1 TO 60 NEXTZ
7125 GETN$ IFN$""" THEN 7500
7150 PRINTTAB(11)" S.O.S. MISSION ""
7160 FOR Z=10 TO 200 STEP-14 POKEP Z NEXTZ POKEP,0
7170 FOR Z=1 TO 40 NEXTZ
7180 PRINTTAB(10)" S.O.S. MISSION "
7190 FOR Z=100 TO 1 STEP-11 POKEP.C NEXTZ POKEP,0
7200 FOR Z=1 TO 40 NEXTZ
7210 PRINTTAB(10)"S.O.S. MISSION "
7220 FOR Z=1 TO 100 STEP11 POKEP.C NEXTZ POKEP,0
7230 FOR Z=1 TO 40 NEXTZ
7240 PRINTTAB(10)"
7300 NEXTZ
7400 GOTO 6010
7500 POKE59468,30 PRINT"◼◼◼◼◼◼◼◼◼◼◼◼◼◼◼◼◼PRESS SPACE" POKEP,0
7510 GET N$ IF N$<>" " THEN 7510
7520 PRINT"⊐" RETURN
9000 DATA"       S.O.S. MISSION." 210
9010 DATA"                    ",190
9015 DATA"   (C) BY NIGEL STUART 29 8 1982.",190
9020 DATA" ",170
9030 DATA"   WELCOME CAPTAIN YOU ARE NOW PLACED",180
9040 DATA" IN CHARGE OF OUR LATEST SPACE-CRAFT.",180
9050 DATA" YOUR MISSION IS TO ENTER A TUNNEL",220
9060 DATA" ON AN ALIEN PLANET AND DESTROY",150
9090 DATA" AS MANY OF THESE UNDERGROUND",130
9100 DATA" BASES, AMO DUMPS AND FUEL DUMPS ",240
9110 DATA" AS YOU CAN BEFORE YOU RUN OUT OF FUEL.",240
9120 DATA" ",100
9130 DATA" YOU MAY GAIN ▓EXTRA▓ FUEL AND AMO BY",190
9140 DATA" BOMBING OR SHOOTING AMO AND FUEL DUMPS.",210
9150 DATA" THESE ARE SHOWN AS ▓F▓ AND ▓F▓.",80
9160 DATA" ",50
9170 DATA"   THE CONTROLS FOR THE SPACE-CRAFT",80
9180 DATA" ARE AS FOLLOWS  -",170
9190 DATA" ",200
9200 DATA" 8 TO MOVE UP." 230
9210 DATA" 2 TO MOVE DOWN.",210
9220 DATA" 6 TO MOVE FORWARD.",190
9230 DATA" ",170
9240 DATA" A TO FIRE FORWARD.",150
9250 DATA" Z TO DROP A BOMB.",110
9260 DATA" ",150
9270 DATA"                    ",190
9280 DATA" POINTS AWARDED FOR HITTING ",200
9290 DATA" ♠ = 500".90
9300 DATA" ♥ = 1000".90
9310 DATA" ⊠▓ =250".90
9320 DATA" YOU CAN NOT HIT ⊠" 80
9330 DATA" ▓F▓ = 10 UNITS OF ▓AMO▓.90
9340 DATA" ▓F▓ = 100 UNITS OF FUEL".80
9350 DATA"                    " 190
9360 DATA" ",150
9370 DATA"   GOOD LUCK!! ",200
9380 DATA" YOU WILL NOT BE ABLE TO RETURN BECAUSE",190
9390 DATA" YOU WILL BE BLOWN UP." 210
9400 DATA" BUT TRY TO GET AS FAR AS YOU CAN,",220
9410 DATA" WE ARE COUNTING ON YOU.....," 230

9420 DATA"      ",240
9430 DATA"      ",210
9440 DATA"      ",180
9450 DATA"      ",150
9460 DATA"      ",110
9470 DATA"      ",80
9480 DATA"      ",50
9490 DATA"      ",20
9500 DATA"      ",245
9510 DATA"      ",245
9520 DATA"      ",245
9530 DATA"      ",10
9999 DATA "+".0
```

33

COPY

```
1 REM By Neil Devlin SEPT1982
2P,#12;"@%@%@%@%@@@32,M,
3P,
4F,#GT098,WAIT,H.
5P,#12;"@@@@@@32@
6?#E!=8,P,?            As COPY EE
7?#E!=8,P;"'MEPERT WHEN EDITOR FLASHES'
8?#E!=8,P;"@'BY PRESSING NUMBERS 1 TO 4.'
9L,"             INPUT  '1-FAST  SLOW-2 '8
10F DO!=1 DO?IG.3
11F D=1 V=1@ G,13
12?#28
13?!#@@@22
14?#,?##@@22
15 F,#21;G?N RR1,F-1,L=#FFE3
16F RRG ;@2 L;STR@@@,RT@,3,P.#6
17?@8;L=#E@;I=@
18F,@!=GT@47
19?@#@,R,#3;WAIT,R G,19
20@@#@=N.
21L,ERRA
22G@8,L;COLOUR
23G@8,58;F,#!T@2@;WAIT,H.
24G@8,45
25?@#6;I=@,C=@
26G@8,39
27?@#@,G@8,6;G@8,6;G@4.
29E,
30#LINE @98
31?##@8;@2?!;"'@@@49'3 G.4
32?#T@@8=19 !=1+1;L;K!=1@,COLOUR
33?#T@@8=33 !=1+1;=2;WAIT,COLOUR
34?#T@@8=49 !=1-1;=3;WAIT,COLOUR
35?#T@@8=52 !=1+1;=4;WAIT,COLOUR
36 G@8,6;G@8,33;P@#@1-1;V,G,30
37?#E!=8=19 ?!=8=33 COLOUR,G@8,59;P.
38G,4
39REM DRAW SQUARE
40F,D=1T@5
41?MOVE!=@9.75;WAIT,DRAW!=@9.98
```

```
42?Q=1;N.;IF C!; G@@,55
43F,D=IT@ G,WAIT,H.
44?!=@@;COLOUR;@=@;C!,G,99,R.
45IF #@E!=X=18.COLOUR!,R.
46IF #@E!=X=4@.COLOUR!,R.
47IF #@E!=X=6@ COLOUR@,R.
48IF #@E!=X=8@,COLOUR!,R.
49E,
REM DRAW NUMBERS
51MOVE11.68;DRAW11.65
52MOVE43.68;DRAW49.88;DRAW@9.62;DRAW42.64;DRAW@9.64
53MOVE@2,62;DRAW@9,64;DRAW@9.64;MOVE@9.62;DRAW!?3.62
54MOVE183.62;DRAW@9.82,62;DRAW188.64;MOVE182.63;DRAW60.82.68.R.
55P,#7.R.
56REM DRAW 'YOUR GO'
57MOVE35.158;DRAW39.158;DRAW@9.158;DRAW42.64;DRAW@9.64
58MOVE48.158;DRAW@9.158;MOVE@9.150;DRAW@9.150;DRAW@9.158
59MOVE@9.158;DRAW@9.158;DRAW@9.158;DRAW@9.157;DRAW@9.153
60MOVE62.158;DRAW@9.158;DRAW61.154;MOVE@9.158;DRAW@9.158
61MOVE1.158;DRAW@51.158;DRAW@55.158;DRAW@9.158;DRAW@9.158
62MOVE@9.158;DRAW@9.154;MOVE61.154;DRAW@9.158
63MOVE@9.158;DRAW75.158;DRAW@9.157;DRAW@9.151;DRAW@9.153
64MOVE79.152;DRAW@9.150;DRAW@9.158;DRAW@9.157;DRAW@79.158
65DRAW@77.151;DRAW@9.151;DRAW@9.153;DRAW@9.153
66MOVE@9.158;DRAW@9.158;DRAW@9.150;MOVE@9.150;DRAW@9.158
67E,
68P,#12;"#E!=8;"#6@@@32.
69?"          TUT-TUT''  WRONG CHOICE'
70?N,"      ANOTHER GAME (1-NO YES-2)'2
71IF I=2 G@4
72P,#12;"#E!=8;"#6@@@32.P,
73?"       O.K I'LL GIVE YOU ANOTHER CHANCE'
74P,#12;"#E!=8;"#6@@@32.P,
75?#6@@@32.G,9
76REM DRAW 'CHOICE'
77COLOUR9.150;DRAW@9.186;DRAW@9.186
78MOVE@9.158;DRAW@9.186;DRAW@9.186;DRAW@9.198
79MOVE@9.150;DRAW@9.186;DRAW@9.150;DRAW@9.198
80MOVE@62.158;DRAW@9.158;DRAW@9.190;DRAW@9.198;DRAW@9.198
81MOVE@9.150;DRAW@9.158;DRAW@9.198;MOVE@9.190;DRAW@9.198
82DRAW66.190.R.
```

BY NEIL DEVLIN

RUNS ON AN ATOM IN 12K

How good are your powers of concentration and memory?

Not very good, then let Copy home home to razor sharpness as the Atom displays in hi-res graphics an ever increasing sequence of numbers for you to remember. One wrong one and you have to start all over again from scratch.

For those of you thinking you are superior there is a fast mode designed to take the smirk off your face and bring you back to reality.

Based upon the Simon game, Copy is written for an expanded Atom.

GHOSTS

```
10 GO SUB 620
15 REM MAIN LOOP
20 FOR J=1 TO 20
30 IF J=9 THEN PRINT AT 11,4;
PAPER 3; FLASH 1;" Made it ";
20 PAUSE 50; FOR J
90 ghosts from 1 TO 5; PAUSE  : FOR J
1 TO 5   SLEEP  :.30; NEXT J; PAU
SE 200
40 LET a=0
50 GO SUB 540
70 REM SET UP ANTIMATTER
80 FOR i=1 TO 10
90 LET b=INT (RND*20)+1, LET
(RND*30)+1; INK 5;"@"
100 NEXT i
80 REM SET UP PLAYER & GHOSTS
90 LET a=INT (RND*21)+1
100 LET b=INT (RND*31)+1
110 DIM b (q,2), DIM q (q,2)
120 FOR i=1 TO 3
130 LET b(j,1)=INT (RND*21)+1
140 LET b(j,2)=INT (RND*31)+1
150 NEXT i
160 LET c=a; LET d=b
170 GO SUB 340
180 PRINT AT a,b; PAPER 2;" "
190 PAUSE 0
195 REM MOVEMENT LOOP
200 FOR I=1 TO 3
210 LET c=a
220 LET d=b
225 REM PLAYER MOVEMENT
230 LET a=a+(INKEYS="6" AND a<2
1)-(INKEYS="7" AND a>1)
235 LET b=b+(INKEYS="8" AND b<3
1)-(INKEYS="5" AND b>1)
240 LET b=b+(INKEYS="8" AND b<3
1)-(INKEYS="5" AND b>1)
245 REM GHOST MOVEMENT
```

How long can you evade the nasty little ghosts that pursue relentlessly around the screen? Your only chance is to force the ghosts to step onto anti-matter spots.

First there will be one ghost after you and when he has been disposed of two more will appear to carry on the evil job. When the two have gone three will appear, then four, five . . .

Watch out then if you do not get caught by them or step onto an anti-matter spot you will come to a nasty end!

This program uses all three of the Spectrum's best requisites — sound, colour, and user-defined graphics — to make up an exciting arcade type game.

When run the computer sets up the screen and waits for you to press a key before starting. Your little man is moved by the cursor keys.

BY IAN McATAMNEY

RUNS ON A SPECTRUM IN 16K

34

```
250 NEXT J
260 IF J=1 TO 9 GO TO 370
280 IF J>9 THEN NEXT J
290 IF J>12>200 THEN NEXT J
300 IF a(J,1)<b(J,1)THEN GO TO 340
310 LET b(J,1)=a(J,1) LET a
320 IF a(J,1)=a(J,1) THEN
330 LET J=1 a(J,1)=a(J,1) <b
339 LET ATTA (b(J,1),a(J,2))=13
THEN ATTA (b(J,1),a(J,2))=13
350 IF a(J,1)=a AND a(J,2)=b TH
EN GO TO 200
360 LET J=1 THEN NEXT J
370 IF ATTA (a,b)=13 THEN GO TO
340 GO SUB 200
400 LET J=1 200 SCREEN
410 PRINT .02.22,c,d,"1"
420 PRINT .02.22, PAPER 2;"1"
430 BEEP .02,22
440 Hosts left; "p-m
450 FOR J=1 TO 9 THEN NEXT J
460 IF J>9 THEN RETURN
470 IF ATTA (J,1)=b(J,1) LET
480 LET b(J,1)=a(J,2)
490 PRINT b(J,2), b(J,2),"1"
500 PRINT b(J,1), INK 6;"1"
```
```
500 NEXT
510 RETURN
520 PAPER INK 7: CLS . BORDE
R 0
530 RETURN
535 REM END GAME
540 PRINT " ="; AT a,b; FL
ASH 1
550 PRINT " foot, you went onto
FLASH 1
555 BEEP 1 PAUSE 0: RUN
560 PRINT AT a,b
570 PAUSE 0: PAPER 4; INK
8;"1"
580 BEEP .02 -45
590 PRINT " got you this 1
AT ="; INK 8; PAPER 4; INK
6;"1"
FLASH 1
600 BEEP .02 -45 PAUSE 0: RUN
610 REM USER-DEFINED GRAPHICS
620 FOR J=0 TO 7: READ D: POKE
USR "BIN "+STR$ P): N
EXT
830 FOR J=0 TO 7: READ D POKE
USR "BIN "+STR$ P): N
USR J: VAL ("BIN "+STR$ P): N
EXT
5XT "RETURN
DATA 10,101000,111000,10000,111
DATA 10,101000,111000,10000,111
DATA 11011,101000,10100,10000,10
DATA 11011,11111,11100,11110,10
DATA 1111,11111,11111,11110,10
11000,
11001,
11000
```

```
1 PRINT#
5 ;■■■■■■■■■■■■■■■■■■■■■■■■■■■
10 DATA33249,53413,53534,53618
15 DATA53263,53424,53534,53619
18 DIMCL(2,4):FORI=1TO2:FORJ=1TO4:READCL(I,J)
:NEXTJ,I
25 DATA200,12,6.2
30 FORI=1TO200:TU=RND(1)NEXT
35 J46+INT(RND(1)*4)LL=6+INT(RND(1)*5):DR
=INT(RND(1))+4):IC)=LJ:IC2=LJ
40 DIMDU(4):FORI=1TO4:READDU(I):NEXT J
90 DIML(2,2):FORI=1TO2:L(1,1)=119:DL(1,2)=1:DL(2,1)
=118:DL(2,2)=119
55 DATA2:DINL(1):READDL(I):NEXTI
50 DIMDR(4):FORI=1TO4:READDR(I):NEXTI
60 DATA2,3,5,7
65 DATA2,14,10,12,14,10,10,2,6,14,6
70 DATA14,15,21,78,10,15,21,21,21
71 DATA35,10,10,6,21,14,10,10,15
72 DATA35,10,10,15,78,10,15,5,10,15
74 DATA70,10,10,10,5,21,14,10,10,10,6
78 DATA35,10,10,18,3,4,2,73,10,70,6
80 DATA35,2,6,78,15,21,78,6
81 DATA70,14,10,10,10,5,5,10,15
82 DATA35,10,10,6,21,78,10,10,15
83 DATA35,10,10,10,15,21,78,10,10,6
84 DATA35,10,10,10,18,3,4,2,73,10,70,6
85 DATA35,10,10,10,6,21,14,10,10,10
88 DATA21,105,2,21,78,10,15,21,21,21
90 DATA21,105,2,21,78,10,15,21,21,21
91 DATA35,10,10,6,21,78,10,15,16,15
92 DATA35,15,35,10,10,5,5,10,15
93 DATA21,2,21,35,10,10,6,21,14,21,21
94 DATA21,3,21,21,21,78,14,21,15,15
95 DATA35,105,2,21,78,10,15,21,21,21
96 DATA21,42,21,21,14,21,15,21,15
97 DATA21,2,21,21,78,10,15,21,21,21
98 DATA21,2,21,105,2,21,78,10,15,21,21
99 DATA21,2,21,14,6,21,35,10,10,10
100 DATA35,2,2,3,14,5,5,5,13,14
120 REM ■■■■■■■■■■■■■■■■■■■■■■■■■■■
129 DATA78,75,105,25,10,10,30,78,15
130 PRINT
131 PRINT
132 PRINT "   3 - D  "
133 PRINT "■■■■■■■■■■■■■■■■"
```

3D MAZE

BY MATTHEW BLAKSTAD

RUNS ON AN MZ80K IN 7K

Baffled, bothered and bewildered? No? Well you will be after trying to find your way out of 3D Maze!

You'll find yourself in an impressive spatial representation of a mindbending maze once you've programmed in all the twists and turns. All you have to do is escape.

The program enables you to move left, right, and forwards, and even to execute a neat little 180 degree "flip" as you attempt to work out which way the exit is.

When the elusive exit is in sight a letter E appears on the screen. A musical jingle greets your successful escape and the computer displays the time it took you to get out of its mysterious maze. See you soon — we hope.

Variables/arrays

CL(2,4): corner location on screen of maze. TV: temporary variable. LL.LJ: co-ordinates of player. TI, TJ: temporary co-ordinates for

printout. Si, SJ: co-ordinate for finding side location. DR: direction in which player is facing. CL, CJ: co-ordinates for printout at end of game. DW, (4): depth of wall for each distance. DL (2,2): codes of diagonal line graphics. VL (2): codes of vertical line graphics.

DR (4): prime number for testing the presence of a wall. Si: horizontal piece string. I&J: loop variables. (also X). AS: temporary string variable. WK (10,f0):number of each cell for testing for the presence of a wall. MZ: choice of maze. TiS: MZ80K time string. CA: advancement of cell from (Ti,TJ). SD: side being tested in wall.

OV: other temporary variable. TN: direction of turn/correct input test. PP: position of poke (location). CL: left hand corner for facing wall. C2: right hand corner for facing wall. WH: width for facing wall. DW: width for facing wall in adjacent cells.

(35)

➤

```
134 PRINT"                    "
135 PRINT"                    "
136 PRINT"                    "
137 PRINT"                    "
138 PRINT"                    "
139 PRINT"                    "
140 PRINT"                    "
141 PRINT"                    "
142 PRINT"                    "
143 PRINT"                    "
144 PRINT"     MAZE           "
145 PRINT"                    "
146 PRINT"                    "
147 PRINT"                    "
148 PRINT"                    "
149 PRINT"                    "
150 TEMPO7:FOR J=1TO5:FORI=1TO5:MUSIC"_D&_E0"
:NEXTI:FOR J=1TO5:MUSIC"_D&_C0"
155 NEXT J
160 PRINT#1:PRINTS#:"Find your way"
161 PRINTS#:"through a"
162 PRINTS#:"perspective view"
163 PRINTS#:"for one of three"
164 PRINTS#:"mazes using the"
165 PRINTS#:"commands listed."
166 PRINT#1:PRINTS#:"N,S. The cell"
167 PRINTS#:"nearest to you"
168 PRINTS#:"is the one"
169 PRINTS#:"which you are"
170 PRINT#1:PRINT#1:PRINTS#:"PRESS ANY KEY"
175 PRINTS#:"n."
180 GET A$:IFA$=""THEN190
190 PRINTS#:"SELECT MAZE (1-3)"
260 GETA$:IF(VAL(A$)<0)OR(VAL(A$)>3)THEN260
265 DIM(MA)
270 DIM(S(18,10):FORX=1TOVAL(A$):FORI=1TO10:
FOR J=1TO10:READS(I,J):NEXT J,NEXT I,X
280 POKE55555,0
290 POKE55555,0
295 VB$="000000"
299 REM ** DISPLAY LOOP **
300 TI=1:ITA=1:FORCH=1TO4
303 REM ** LEFT & RIGHT WALLS **
310 FORSD=1TO2
320 CU=CR+(3-2*SD)*IFDU=0THENDV=4
325 IFDU=5THENDV=6
330 TU=M8(TI,TJ)*DR(DU)
335 IFM8(TI,TJ)=0THEN(DU)
340 FORI=L(SD):TO(TOL(SD),CR):43-2*SD)*(4-
CR)STEP(43-2*SD)
345 POKEI,DL(SD):NEXTI
350 FORI=L(SD)):THEN(TOL(SD),CR)=40)6T0360
355 FORI=(1+SD*2-3)*FORI=TUTOTU+(40-CR)STEP
(4-CR):POKEI,UL(SD):NEXTI
360 TU=IFDU=0THENPOKEI,UL(SD)44:CR)STEP
(37+2*SD):POKEI,DL(SD):NEXTI
370 FORI=L(SD),UL(SD):CR)43-2*SD)*TOL(SD),CR)
STEP(43-2*SD)*(4-CR)STEP40:STEP40
380 POKEI,UL(SD):NEXTI
381 NEXTSD
382 IFCR=4THEN450
400 TU=M8(TI,TJ):DR(CR)
410 IFM8(TI,TJ)=0THEN(TU)=IFT1=0THENPQKEL
(I,4):5)6T0700
420 IFDR(TI,TJ)=2THENJ=J+1
430 IFDR=THENTI=I+1
440 IFDR==3THENTI=I-1
450 NEXTCR
700 POKE55555,1:PRINT"█"SS!"    Your move"
710 PRINT#1:"         ==== "
720 PRINT#1:PRINTS#:"L=Left   R=Right"
730 PRINT#1:PRINTS#:"F=Flip   M=Move"
740 PRINT#1:PRINTS#:"S="
750 GETA$:IFA$=""THEN750
760 PRINT#1:" "A$
770 IFA$="R"THENTI=1
780 IFA$="L"THENTI=4
790 IFA$="F"THENTI=2
800 IFA$="M"THEN850
810 GOTO750
820 DR=DR+TI:IFDR>4THENDR=DR-4
830 IFDR=4THENDR=4
840 TIMUM:PRINT"■":POKE55555,0:GOTO0300
850 IFM8(CLI,J)=0OR DR=INT(M8(CLI,J))/DR(CR)
)THENM8(CLI)6T0750
855 IFDR=THENTI=I-1:IFI=1THEN900
```

```
870 IFDR=THENTI=I+1
880 IFDR=THENTJ=J+1
890 GOTO040
900 FOR I=1TO200:POKE4514,INT(RND(1)*58)+USR
(68):NEXTI:USR(71)
910 PRINT"█"
920 OM2005:011400,1620
930 PRINT"█████████"SS!"STARTING"
935 PRINT"████████████"
940 PRINT#1:PRINTS#:"      "CJ! ", "CJ*"  "
945 PP=55207+40*CI2+2*CJ
950 POKEPP,202
955 PRINT#1:PRINT#1:PRINTS#:"Time="!VAL(MID#
(TI#,3,2))"."mins."
960 PRINT#1:PRINTS#:"%%WIOTHER GAME?"
965 GET A$:IF A$=""THEN965
970 IFA$=="Y"THENPRINT"YES":FORI=1TO500:NEXT:
RESTORE:GOTO1
990 PRINT"█"END
999 REM ** FAR THE WALL DISPLAY **
1000 C1=CL(1,CR)=CL(2,CR)+41:C2=CL(2,CR)+(5-CR)
*391+8*DW(CR)*2*(5-CR-2)
1005 FORI=C1TOC2TO:POKE1,40,60:NEXTI
1010 FOR I=DOWN:POKEI,40+1,UL(2)POKE2,CE2+40
+40:NEXTI
1020 FORI=C1+40:44UNTOC2+40*WH:POKEI,40,112:NEXT
1030 GOTO700
1040 REM ** SPACE TO SIDE **
1050 SI=TI:SJ=TI
1060 IFSI=THENSJ=SI-1:IFSI=0THEN381
1070 IFSJ=DOWN:THENSI=SI+1
1080 IFSU=3THENSJ=SJ+1
1090 IFSU=4THENSI=SI-1
1100 TU=M8(SI,SJ)*DR(DR)
1110 TU=DU*(TU)=0THEN(TU)THENGOTO038
1210 PRINT"█          "
1220 PRINT"█          "
1230 PRINT"█          "
1240 PRINT"█          "
1250 PRINT"█          "
1260 PRINT"█          "
1270 PRINT"█          "
1280 PRINT"█          "
1290 PRINT"█          "
1300 PRINT"█          "
1310 PRINT"█          "
1320 PRINT"█          "
1330 PRINT"█          "
1340 PRINT"█          "
1350 PRINT"█          "
1360 PRINT"█          "
1370 PRINT"█          "
1380 PRINT"█          "
1390 RETURN
1400 PRINT"█          "
1410 PRINT"█          "
1420 PRINT"█          "
1430 PRINT"█          "
1440 PRINT"█          "
1450 PRINT"█          "
1460 PRINT"█          "
1470 PRINT"█          "
1480 PRINT"█          "
1490 PRINT"█          "
1500 PRINT"█          "
1510 PRINT"█          "
1520 PRINT"█          "
1530 PRINT"█          "
1540 PRINT"█          "
1550 PRINT"█          "
1560 PRINT"█          "
1570 PRINT"█          "
1580 PRINT"█          "
1590 PRINT"█          "
1600 RETURN
1610 PRINT"█          "
1620 PRINT"█          "
1630 PRINT"█          "
1640 PRINT"█          "
1650 PRINT"█          "
1660 PRINT"█          "
1670 PRINT"█          "
1680 PRINT"█          "
1690 PRINT"█          "
1700 PRINT"█          "
1710 PRINT"█          "
1720 PRINT"█          "
1730 PRINT"█          "
1740 PRINT"█          "
1750 PRINT"█          "
1760 PRINT"█          "
1770 PRINT"█          "
1780 PRINT"█          "
1790 PRINT"█          "
1800 PRINT"█          "
1810 PRINT"█          "
1820 PRINT"█          "
1830 RETURN
```

```
  10 REM 3611436942053500540B4359
4444538481963400456805138233574294
4475537541803585B5
  20 LET V=VAL "1"
  30 LET Y=VAL "0"
  40 PRINT TAB VAL "9";"GRAPHICA
L GOLF"
  50 PRINT
  60 PRINT TAB VAL "7";" (C) IAN T
URTLE,1981"
  70 PRINT
  80 PRINT "RANDOM DA NORMAL CDU
RSE?-Y/N"
  90 PAUSE VAL "40000"
 100 LET Z$=INKEY$
 110 IF Z$<>"Y" AND Z$<>"N" THEN
 GOTO VAL "90"
 120 DIM H(VAL "18")
 130 DIM P(VAL "18")
 140 DIM L(VAL "18")
 150 IF Z$="N" THEN GOTO VAL "26
0"
 160 LET ZZ=VAL "16513"
 170 FOR A=V TO VAL "18"
 180 LET ZZ=ZZ+V
 190 LET L(A)=V+PEEK "10"+PEEK
(ZZ)-VAL "26"
 200 LET ZZ=ZZ+V
 210 LET P(A)=PEEK (ZZ)-VAL "26"
 220 NEXT A
 230 GOTO VAL "330"
 260 PRINT
 263 RAND
 265 LET ZZ=VAL "16"
 270 FOR A=V TO VAL "18"
 280 LET L(A)=INT (RND*VAL "420"
)+V+L(H)/VAL "499"
 290 LET P(A)="3"+(L(H))/VAL
"279")+(L(H)/VAL "499")
 295 LET ZZ=ZZ+V
 300 NEXT A
 305 PRINT "PAR =";ZZ
 310 FOR A=V TO VAL "18"
 320 LET H$=""
 330 LET Z=Y
 340 FOR A=V TO VAL "32"
 350 LET B$=B$+CHR$ VAL "6"
 360 LET E1=B$+CHR$ VAL "6"
 370 LET B$=Y
 380 NEXT A
 390 LET A$=Y
 393 LET B=Y
 400 LET E1=Y
 410 LET H=Y
 420 LET T=Y
 440 LET UP=Y
 450 LET YY=Y
 460 LET D=Y
 470 LET HP=Y
 480 LET V=Y
 490 LET XX=Y
 500 LET SH=Y
 510 LET Y=Y
 520 LET MS=Y
 530 LET TG=Y
 540 LET DF=Y
 560 LET Y=Y
 570 PRINT "HANDICAP?"
 580 INPUT HM
 565 RAND
 590 LET AR=PEEK (VAL "16396"+VAL
"305")
 595 LET ZZ=PEEK VAL "305"
 600 RAND PR+P(M)
 610 LET P(M)=PR+P(M)
 620 LET SH=Y
 700 FOR A=V TO VAL "18"
 710 PRINT A$
 720 NEXT A
 730 PRINT "HOLE ";M;" DIST ";L
(M)
 740 LET UP=VAL "3"+INT (RND*VAL
"13")
 745 LET TG=UP
 750 FOR A=U-L (RND).5) TO V+AND
 760 FOR B=-U-(RND).5) TO U+(AND
.3)
 770 POKE (UP+6)*VAL "33"+R+DF,Y
 780 NEXT B
 790 LET UP=UP+(RND).5) -(RND).5)
 800 LET UP=UP-(RND).5) +(UP
(VAL "2")
 810 NEXT A
 820 LET HP=INT (L(H)/VAL "20")-
 830 FOR A=-U-(RND).3) TO U+(AND
.3)
 840 FOR B=-U-(RND).3) TO U+(AND
.3)
 850 POKE (UP+6)*VAL "33"+HP+R+D
F,VAL "126"
 870 NEXT A
 880 LET AR=VAL "33"+HP+DF,VAL
"149"
 890 POKE DF+TG*VAL "33"+U,VAL "1
168"
 910 POKE VAL "-3"+INT (RND*UR
 920 LET ZZ=DF+(UP*ZZ)*VAL "33"+
 930 IF PEEK (YY) =VAL "8" AND P
EEK (YY) =VAL "8" THEN GOTO VAL "910"
 940 POKE YY,VAL "126"
 950 FOR A=V TO VAL "4"+(AND).4)
 960 LET ZZ=VAL "-3"+INT (RND*UR
 970 LET XX=VAL "-3"+INT (RND*UR
L "120")
 975 LET YY=DF+(UP+XX)*VAL "33"+
HP+ZZ
 980 IF PEEK (YY) =VAL "8" AND "
PEEK (YY) =VAL "8" THEN GOTO VAL "960"
 990 POKE YY,VAL "126"
1000 NEXT A
1010 IF PEEK (YY) (VAL "4" THEN GOTO
 VAL "940"
1028 IF HP*(VAL "45")+... "10"
  ...  1840"
1030 LET HP=VAL "10"
```

So you think you're another Arnold Palmer do you? Well, this round of golf will sort the men out from the boys!

Graphical Golf is a simulation of the real game. It has been made as realistic as possible, with many of the features of the real thing.

Initially, the computer asks you if you would like a random or a normal course. If you choose the normal course, you will get the lengths and pars of holes stored in the REM statement in line 10.

If you choose the random course, you have access to over 65 000 different courses by inputting a number between 1 and 65 000's in reply to "COURSE NO?". If you want to play that course again sometime, simply input the same number in response to "COURSE NO?" Finally, you asked to input your handicap, else input your handicap to 24. If you play well enough, your handicap will be

reduced at the end of the round.

From now on, you are on the course. If you have a ZX81, you will see the computer draw the hole, else, on the ZX80, the screen will simply go blank for 50 seconds or so. When the computer has finished, you will be presented with a graphical representation of a golf hole.

The computer will then ask you for your choice of club. To have 22 clubs, consisting of 14 woods, 1-9 irons and with their own percentage swing. Next you are asked to input an angle of shot. An input of 0 degrees means straight ahead, '90' straight up, etc.

You'll encounter all the hazards of a real course, bunkers, the rough, and even water traps.

The computer will print out a scorecard for each round you play — and maybe even reduce your handicap should your performance warrant it!

37

```
1040 FOR A=U TO VAL "4"+(RND*.4)
1050 LET ZZ=HP+INT (RND*VAL "4")
1060 LET B=X+CU VAL "33"*ZZ
1070 IF PEEK (YY)<>Y THEN GOTO V
AL "1090"
1080 POKE YY,VAL "52"
1090 GOTO VAL "1120"
1100 NEXT B
1110 NEXT A
1120 IF I(H)=VAL "5" THEN GOTO V
AL "1240"
1140 LET HP=VAL "17"
1150 FOR A=U TO VAL "4"+(RND*.4)
1160 LET ZZ=HP+INT (AND*RND*4")
1170 LET B=X+CU VAL "33"*ZZ
1180 IF PEEK (YY)<>Y THEN GOTO V
AL "1220"
1210 POKE YY,VAL "52"
1220 NEXT B
1230 NEXT A
1240 LET HP=INT (RND*.25 *VAL "40"
1250 LET HP=INT (I(H)/VAL "40"
1260 FOR A=Y TO VAL "40"
1270 LET B=X+CU VAL "33"*HP+DF+VAL
1280 LET HP=HP+(AND*.5)-(AND*.5)
1290 LET HP=HP+(HP (VAL "2")-(HP (
VAL "20")
1310 LET HP=HV
1320 LET VP=VTG
1330 PRINT AT VAL "21",Y;"CLUB"
1360 LET PB=VY
1370 INPUT PI
1370 IF CI<VAL "0" OR CI>VAL "29" OA CI<
VAL "" AND CI>VAL "11" OA CI<
VAL "20" OA CI<VAL THEN GOTO VA
L "1360"
1375 IF CI>VAL "19" THEN GOTO VA
L "1410"
1410 LET PS=VAL "150"
1420 GOTO VAL "1450"
PAGE SWING "1430 PRINT AT VAL "21",Y;"PERCEN
1430 INPUT PS
1450 IF PS>VAL "50" OA PS>VAL "1
00" THEN GOTO VAL "1430"
1460 PRINT AT VAL "21",Y;"SHOT"
NGLE?"-100 TO +300"
1470 INPUT PS
1480 IF PS<VAL "-100" OA PS>VAL
"100" THEN GOTO VAL "1470"
1480 PRINT AT VAL "20",Y;B$
1484 PRINT AT VAL "20",Y;B$
1485 IF B=Y THEN POKE B$(VAL "22
"+HR)-AND+(AS-PI)*COS
1500 LET AS=(AS+PI)*COS (13
1520 LET PS=PS*VAL "100"
1530 IF CI>VAL "10" THEN LET CI=
CI+VAL "10"
1533 IF CI>VAL "10" THEN LET CI=
1535 LET CI=VAL "100"-CI
1537 POKE DF+VAL "88"+5H
1540 LET MS=INT (((CI*VAL "14"
INT (AND*VAL "3"))*PS*AC)*COS
1545 LET US=INT (((CI*VAL "14"
INT (AND*VAL "3"))*PS*AC)*SIN
(AS)/VAL "33")
1547 LET HC=VV
1550 LET BP=DF+HP+H5+(UP*US)+VAL
1560 IF HP+H5>VAL "32" OA HP+H5<
U OA UP+US>VY OR UP+US>VAL "17"
THEN GOTO VAL "1670"
1580 IF VY>PEEK (BP+VAL "14
1590 GOTO VAL "1720"
1600 LET PB=Y
1601 POKE BP,VY
1604 PAUSE VAL "50"
1605 PAUSE VAL "155"
1610 IF YY=VAL "128" AND YY=VAL
"200"
1490 THEN GOTO VAL "3" THEN LET
1620 IF YY=VAL "5" THEN GOTO VAL
"1750"
```

```
1630 IF YY=VAL "52" THEN GOTO VA
L "1830"
1640 PRINT AT VAL "20",Y;B$
1650 PRINT AT VAL "20",Y;"ON FAI
AWAY"
1660 GOTO VAL "1930"
1670 PRINT AT VAL "20",Y;B$
1680 PRINT AT VAL "20",Y;"OUT OF
 SOUNDS-PENALTY 1 STROKE"
1690 LET SH=SH+U
1700 PAUSE VAL "100"
1710 GOTO VAL "1340"
1720 PRINT AT VAL "20",Y;B$;"SPLASH
1730 PRINT AT VAL "20",Y;"SPLASH
1738 PRINT AT VAL "20",Y;"1 STROKE"
1740 GOTO VAL "1750"
1750 PRINT AT VAL "20",Y;B$
1755 LET VP=VP+VS
1760 IF RND<.4 THEN GOTO VAL "18
1770 PRINT AT VAL "20",Y;"IN HEA
V ADOUGH"
1780 LET AC=.6+RND/VAL "5"
1790 GOTO VAL "1930"
1810 PRINT AT VAL "20",Y;"IN LIG
ADOUGH"
1810 LET AC=.8+RND/VAL "5"
1820 GOTO VAL "1930"
1830 PRINT AT VAL "20",Y;"BUNKER
1840 PRINT AT VAL "20",Y;B$
1850 LET ZZ=INT (RND*VAL "3")
1860 IF ZZ=Y THEN PRINT "GOOD"
1870 LET ZZ=INT (RND*VAL "3")
1880 +INT (RND*VAL "3")=VAL "24"
1890 IF ZZ=VAL "2" THEN PRINT "AV"
1890 IF ZZ=VAL "2" THEN PRINT "B
1900 IF ZZ=VAL "2" THEN PAINT "B
1910 LET ZZ=INT (RND*VAL "3")
1910 "28"+INT (AND*VAL "3")
1915 LET AC=.7-ZZ/VAL "10"+AND*VA
1920 PRINT "LIE,MAX.CLUB";HC
1930 PAUSE VAL "100"
1940 LET HP=HP+H5
1950 LET VP=VP+US
1960 GOTO VAL "1340"
2000 LET HP=HP+H5
2010 PRINT AT VAL "20",Y;B$
2020 PRINT AT VAL "20",Y;"ON THE
 GREEN IN "SH
2030 PAUSE VAL "150"
2040 CLS
2050 PRINT TAB VAL "17";"
2060 PRINT TAB VAL "17";"
2070 PRINT TAB VAL "17";"
2080 PRINT TAB VAL "6";"
2090 FOR A=U TO VAL "6"
2100 PRINT TAB VAL "6";"
2140 NEXT A
2150 POKE DF+VAL "52","128","+U
2155 LET TS=INT (RND*VAL "10")+U
2160 POKE DF+VAL "53",VAL "150"+
INT (RND*VAL "10")+VAL "5"
2170 LET TS=VAL "2"+INT (AND*VAL
2180 IF TS=VAL "2" THEN PRINT "S
2190 IF TS=VAL "3" THEN PRINT "M
EETUM"
2210 PRINT "GREEN";12,VAL "3";"
2220 LET YY=AS-(HP+U-INT (I(H)/
VAL "20")+U
2230 PRINT AT VAL "20",Y;"ABS BP
2240 PRINT AT VAL "12",Y;ABS BP
2250 LET YY=ABS BP+VAL "297
2270 IF ABS BP<VAL "1" THEN GOTO
VAL "2480"
2280 LET YY=VAL "20"-INT ((BP/VA
2290 IF YY>VAL "32" THEN LET YY=
2300 IF YY<U THEN LET YY=U+(YY
2310 LET VP=VAL "20"-(YY/VAL "21
2320 POKE DF+VAL "297"+YY,VAL "5
2330 PRINT AT VAL "13",Y;"PUTTIN
```

38

```
9 STRENGTH"(1-28)
2340 INPUT ZZ
2350 IF ZZ(V OR ZZ)VAL "20" THEN
   GOTO VAL "2340"
2360 IF 8P)V THEN LET XX=V
2370 IF 8P)V THEN LET XX=-V
2380 POKE DF,VAL "237",YY,VAL "9
2410 POKE VAL "68"
2410 FOR A=V TO ZZ
2420 LET 8P=8P+XX*(V+INT (AND=TG
    )
2430 NEXT A
2440 LET SH=SH+V
2450 POKE DF,VAL "317",VAL "52"
2470 PAUSE DF,VAL "58"
2480 POKE 8P,VAL "317",VAL "131"
2490 PAUSE DF,VAL "100"
2510 CLS
2510 PRINT "YOU HOLED OUT IN ";S
   H
2520 LET S(H)=SH
2530 LET ZZ=SH-P(H)
2540 IF ZZ(VAL "-3" THEN PAINT "
   EXCELLANT-AN ALBERTROSS
2550 IF ZZ(VAL "-2" AND P(H))VAL
   "3" THEN PRINT "UNBELIEVABLE-A
   HOLE IN ZZ(VAL "-2" AND P(H)(VAL
   L "3" THEN PRINT "GREAT-AN EAGLE
   L
2570 IF ZZ(VAL "-1" THEN PRINT "
2580 IF ZZ=V THEN PAINT "WELL DO
   NE-A PAR"
2590 IF ZZ=V THEN PRINT "HHHHHH-
   A BOGEY"
2600 IF ZZ)V THEN PAINT "KEEP YO
   - HEAD DOWN"
2610 PRINT
2620 LET TS=TS+SH
2630 LET P=TS-TB-PA
2640 PRINT "YOU ARE NOU ";
2650 IF ZZ)V THEN PRINT ABS ZZ;
2660 IF ZZ)V THEN PRINT "LEVEL";
2670 IF ZZ)V THEN PRINT "OVE
2680 PRINT " PAA (GROSS)"
2690 PRINT "                    "
2700 PRINT
2710 PAUSE VAL "40000"
2720 CLS
2730 PRINT H
2740 PRINT TAB "12";"
2750 PRINT TAB VAL "3";"HOLE";TA
   B VAL "11";"DIST";TAB VAL "19";"
   PAR";TAB VAL "26";"SHOTS"
2760 FOR H=V TO VAL "4"
2770 PRINT TAB VAL "4";H;TAB VAL
   "12";L(H);TAB VAL "28";P(H);TAB
   VAL "28";S(H)
2770 NEXT H
2790 PRINT TAB VAL "127";TS
2800 PAUSE VAL "40000"
2810 CLS
2820 PRINT "YOU TOOK ";TS;" SHOT
   S
2830 PRINT "(NET ";TS-HA;")"
2840 PRINT
2850 LET ZZ=TS-PA-HA
2860 PRINT "YOU FINISHED ";
2870 IF ZZ)V THEN PRINT ABS ZZ;
   "UNDER"
2880 IF ZZ)V THEN PRINT "LEVEL";
2890 IF ZZ)V THEN PRINT ZZ;" OVE
2900 PRINT "PAR (NETS)"
2910 IF HA=V THEN PRINT STOP
2920 IF ZZ(VAL "-2" THEN LET PD=
   V
2930 IF ZZ(-V THEN LET PD=-U
2940 IF ZZ(VAL "-3" THEN LET PD=
   VAL
2950 IF ABS PD)VAL "H
2960 PAINT
2970 PRINT "AS A RESULT,"
2980 IF PD)V THEN GOTO VAL "3020
2990 PRINT "HANDICAP IS DOWN ";A
   BS PD;" SHOTS"
3000 STOP
3020 PRINT "YOUR HANDICAP STAYS
   AT ";HA," SHOTS"
3030 STOP
```

DODGEMS

BY S. JAMES & R. NURSE

RUNS ON A BBC MODEL B

Vroom, vroom, here they come — It's the duelling dodgems!

But these are not really like those all fairground favourites. There's more than a touch of motorway madness in this game.

Your BBC micro will set up a square-shaped race track for you — and two cars will appear. One red and one green. You are in control of the green car. The computer controls the red one.

The computer-car will proceed to rush around the track in the opposite direction to your red car — and it's aim is extremely unfriendly. It wants to knock you off the road as quickly as possible. You must avoid the computer car.

IN 32K

```
10high=0
20MODE2:PROCINSTRUCT
30MODE7:PROCSETUP:REM LAST PIECE OF PROGRAM
   SETS UP VARIOUS COLOURS ETC.
40GC=0:ENVELOPE1,3,0,0,0,0,0,0,121,-10,-5,-2,
   120,120
50M=0:ONERROR MODE7:END
60VDU23,1,0;0;0;0;
70VDU&19:50=DOSUB150
80PROCDRAW:PROCFILLING
90PROCMOVE1
100IFYDX=0Y AND YAX=0X THEN1040
110PROCMOVE2
120IFYDY=0Y AND YAX=0X THEN1040
130GOTO90
140END
150VDU23,250,0,238,68,250,255,68,238,0
160VDU23,251,24,90,126,90,24,90,126,90
170VDU23,106,255,255,255,255,255,255,255,255
180VDU&151:YAX=71:CAR$=CHR$251
190DX=9:V=2:CAR2$=CHR$251
200X=1:M=VOLM=V0:M=1
210RETURN
220DEFPROCDRAW
230COLOUR&backcol:COLOUR1forecol
240CLS
250PRINT"  SCORE;"
260PRINT"
270PRINT"
280PRINT"
290PRINT"
300PRINT"~~~~~~~~~~~~~~~~~~~~
310PRINT"~                  ~
320PRINT"~                  ~
330PRINT"~                  ~
340PRINT"~                  ~
350PRINT"~                  ~
360PRINT"~                  ~
370PRINT"~                  ~
380PRINT"~                  ~
390PRINT"~                  ~
400PRINT"~                  ~
410PRINT"~                  ~
420PRINT"~                  ~
430PRINT"~                  ~
440PRINT"~                  ~
450PRINT"~                  ~
460PRINT"~                  ~
470PRINT"~                  ~
480PRINT"~                  ~
490PRINT"~                  ~
500PRINT"~                  ~
510PRINT"~                  ~
520PRINT"~                  ~
530PRINT"~~~~~~~~~~~~~~~~~~~~
540ENDPROC
550DEFPROCMOVE1
560A=723aa*M=d*FX15,0
570PRINTTAB(YAX,YB0)%" ";IFA=0THEN610
```


→

```
580M=((SGN(HM)/76)-(SGN(VM)<0)+2*(A=178)-(A#131))
590IF FNREACH(YA%+VM#SGN(VM),1 1C)="" AND FNREACH(YA%+VM%,YD%+HM%
)="" THEN YX%=YA%+VM%:YD5=YD%+HM%:If FNREACH(YA%-VM%/2,YD%-HM%/21="
"PRINTTAB(YA%-VM%/2,YD%-HM%/21"":BC=BC+&cores:COLOURsrccol:PRINTTAB(8,0):SC
600REM
610REM MOVE AROUND THE MAZE
620TX=YD%+VM:TX=YA%+HM:IF FNREACH(TX,TY1
630IFA="-":THENSC=SC+&core:COLOURsrccol:PRINTTAB(8,011SC
640IFA=.,' = AM0A#:>":PROCCHNO
650YD%=YD%+VM%:YA%=YA%+HM%:SOUND1,1,100,1
660COLOURdrawcol:PRINTTAB(YA%,YD%)CA#
670ENDPROC
680DEFPROCCHNO
690IFVM=0 AND HM=0 THENVM=0:HM=-1:CA#=CHR$250:ENDPROC
700IFVM=0 AND HM=-1 THENVM=-1:HM=0:CA#=CHR$251:ENDPROC
710IFVM=-1 AND HM=0 THENVM=0:HM=1:CA#=CHR$250:ENDPROC
720IFVM=0 AND HM=1 THENVM=1:HM=0:CA#=CHR$251:ENDPROC
730DEFFNREACH(X,Y
740LOCAL A1,LAST%,LASTY,C
750LAST%=POB:L#STY=POB
760VDU31,X,Y
770AX=135:C=USR(&FFA1 AND &FFFF
780CAC DIV %100
790VDU31,LAST%,LASTY
800=CHR$ICI
810DEFPROCMOVE2
820TX=MX+OX:TY=MY+OY
830A#="":NREADCH(TX,TY1
840IF A#="" THEN PROCCHNA
850COLOURdotcol:PRINTTAB(OX,OY1)"."
860COLOURsrccol:PRINTTAB(TX,TY1)CA#:SOUND1,-8,50,1
870OX=TX1:OY=TY:PROCCHNBLANE
880ENDPROC
890DEFPROCCHNA
900IF MX=0 AND MY=1 THEN MX=-1:MY=O:CA2#=CHR$250:GOTO940
910IF MX=-1 AND MY=0 THEN MX=0:MY=-1:CA#2=CHR$251:GOTO940
920IF MX=0 AND MY=-1 THEN MX=1:MY=O:CA2#=CHR$250:GOTO940
930IF MX=1 AND MY=0 THEN MX=O:MY=1:CA2#=CHR$251:GOTO940
940TX=MX+OX:TY=MY+OY:ENDPROC
950DEFPROCCHNBLANE
960D1=RND(3)-2:IF0I+OTHEN940
980A#="":IFNREACH(OX+MY%1,OY+MX#1%:2
990A#="":FNREACH(OX+MY%1%2,OY-MX#1%:2
1000IFA#=""THENENDPROC
1010COLOURdotcol:PRINTTAB(OX,OY1)"."
1020OX=OX+MY%1:OY=OY+MX%1%
1030COLOURsrccol:PRINTTAB(OX,OY1)CA#:ENDPROC
1040REMHIT
1050VDU23,240,0,0,0,24,24,0,0,0
1060VDU23,241,0,0,60,36,36,60,0,0
1070VDU23,242,0,126,66,66,66,66,126,0
1080VDU23,243,255,129,129,129,129,129,129,255
1090X=01:Y=V0
1100EDR?%=IT045
1110COLOURd DCOL:,wrdcol
1120MOVEY%+64,1020-Y%32
1130IF T AND 1<0 THENPRINTCHR$240:MOVEX%+64,1020-Y%32
1140IF T AND 2<0 THENPRINTCHR$241:MOVEX%+64,1020-Y%32
1150IF T AND 4<0 THENPRINTCHR$242:MOVEX%+64,1020-Y%32
1160IF T AND 8<0 THENPRINTCHR$243:MOVEX%+64,1020-Y%32
1170VDU=:PRINTTAB(OX,OY)':SOUND1,1,255-T/255/45,1:NEXT
1180DL$=#F15,0
1190CDE;PRINTTAB(5,10)"You scored "SC
1200IF high<SC THEN high=SC
1210PRINTTAB(5,11)"High Score: "high
1220PRINT"      Do you want another go?"
1230A#=GET$
1240IFA#="Y"THEN30
1250IFA#="N"THENCLS:END
1260PRINTTAB(3)"Just a simple Y or N is sufficient."1GOTO1230
1270DEFPROC1FILLINE
1280RESTORE1460:DL$=#F15,0
1290MOVE0,up
1300FOR1=IT024:READA:PRINT "1A#:NEXT
1310VDU=5ENDPROC
1320DEFPROC1NSTRUC
1330PRINTTAB(13)1=CHR#141"DODGEMS"
1340PRINTTAB(13)1=CHR#141"DODGEMS"
1350PRINTTAB(3)1=CHR#141"DODGEMS"
1360PRINTTAB(14)1"======="
1370PRINTTAB(14)1"======="
1380PRINT"TAB(3)1Welcome to the game of Dodgems."
1390PRINT"In this you have a picture of a square   Race track.There are also two
         the Red Car and The Green Car.       only control you have over yo
ur car    (the green one) is that of either  moving in to a smaller'
1400PRINT"track or put to a larger one. The red cargoes around the track in an o
ppaste     directions to you.To avoid it you must use these controls'
1410PRINT"     A-Move in."
1420PRINT"     D-Move out."
1430PRINT"Happy Dodgems!'
1440PRINT"Press space to start."
1450REPEAT A#=GET:SOUND1%A#=' ":ENDPROC
```



```
1440DATA...
1470DATA...
1480DATA...
1490DATA...
1500DATA...
1510DATA...
1520DATA...
1530DATA...
1531DATA...
1533DATA...
1540DATA...
1550DATA...
1560DATA...
1570DATA...
1580DATA...
1590DATA...
1600DATA...
1610DATA...
1620DATA...
1630DATA...
1640DATA...
1650DATA...
1660DATA...
1670DATA...
```

```
10000DEFPROCSETUP
10010up#55=REM Start position of dots
10020backcod=13;REM Background colour
10030precol=4;REM Foreground colour
10040pawcol=2;REM Colour of controled car
10050dotcol=3;REM Colour of dots
10060mycol=1;REM Colour of random car
10070srccol=1;REM Colour of score
10080scord=10;REM Increment of score
10090endcol=3;REM Colour of score and graphics
10100ENDPROC
```

40

ALPHA

Your planet has been devastated by the marauding Astral Fleet, the most warlike nation in the galaxy. Your defences are all but wiped out and the Astral warrior-ships are closing in for the kill.

You are in control of the last Alpha defence base. But it is damaged and your laser is short of power.

But your turret does contain a multi-directional beam conveyor in working order — so you will be able to use your skill and judgement to destroy the descending Astral Ships.

You can control the position of your Alfa base — but due to a computer malfunction you cannot move and fire your laser at the same time. The number of laser bolts which you have at your disposal is defined by a marksmanship rating which is input at the start of the game.

The future of your planet is in your hands. Can you stop the awful Astrals invading and laying waste to your home?

ATTACK

BY ALEX KEIRNAN

RUNS ON AN UNEXPANDED VIC-20

41

PACMAN

BY NEIL FORSYTH

RUNS ON AN APPLE IN 48K

Munch your way around a maze in this adaptation of the game that has inspired pop-records, tee-shirts, pinball machines, TV adverts and thousands of imitators. It's all here. The ghosts out to munch the greedy little pacman. The power pills which enable the Pacman to devour the ghosts. And all the devious twists and turns of the maze itself.

There's an indicator at the bottom of the screen which tells you when the ghosts are vulnerable to attack. To help the Pacman the maze has two sneaky escape exits at either side which could help you baffle those deadly ghosts.

To control your Pacman use keys 'I' for up, 'J'-left, 'K'-right, 'M'-down. Just one warning — don't play this game between meals. It could ruin your appetite!

```
0  S = 0:L = 3: GOSUB 3000: DIM VA(14,11)
1  HOME : NORMAL
5  GOSUB 6000: GOSUB 10000
10 FOR Y = 0 TO 11
15 FOR X = 0 TO 14
20 READ A:VA(X,Y) = A
22 IF S > 2230 THEN A / 13 = INT (A / 13) THEN A = (A / 13) *  SGN
   (S - 4470):VA(X,Y) = A:NE = 1
25 NEXT X
27 NEXT Y
28 IF S > 0 THEN VA(0,5) = 0:VA(1,5) = 30:VA(14,5) = 0:VA(13,5) =
   70:TB = 1
30 GOSUB 5000: ROT= 0: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDR
   AW 3 AT 149,145
32 ROT= 0: SCALE= 1: FOR P = 1 TO L: XDRAW 2 AT P * 10 + 119,10: N
   EXT P
35 V = 10:DI = 0:D  = - 1:A = 139:OA = A:B = 64:OB = B: ROT= 0: XDR
   AW 3 AT OA,OB
40 X = 139:Y = 1141:R = 0
45 OX = X:OY = Y:RO = R: ROT= RO: XDRAW 2 AT OX,OY
47 HOME : IF NE = 1 THEN  INVERSE : VTAB (21): PRINT "    NO TUNN
   EL AND NO ENERGIZERS    ": NORMAL : GOTO 50
48 HOME : IF TB = 1 THEN  INVERSE : VTAB (21): PRINT "    THE TU
   NNEL IS BLOCKED    ": NORMAL
50 VTAB (22): FLASH : PRINT "    HIT ANY KEY TO START
   ": POKE  - 16368,0: WAIT  - 16384,128: NORMAL
60 HOME : VTAB (21): PRINT "                    SCORE="
100 FOR T = 1 TO 2 STEP 0
110 K =  PEEK ( - 16384)
120 XA = (OX - 69) / 10:YA = (OY - 24) / 10:PA = VA(XA,YA)
125 IF K = 201 THEN R = 0: IF PA / 2 =  INT (PA / 2) THEN Y = Y -
    V
130 IF K = 205 THEN R = 32: IF PA / 5 =  INT (PA / 5) THEN Y = Y +
    V
135 IF K = 202 THEN R = 48: IF PA / 7 =  INT (PA / 7) THEN X = X -
    V: IF X < 69 THEN X = 209
140 IF K = 203 THEN R = 16: IF PA / 3 =  INT (PA / 3) THEN X = X +
    V: IF X > 209 THEN X = 69
142 XA = (X - 69) / 10:YA = (Y - 24) / 10:PA = VA(XA,YA)
145 ROT= RO: XDRAW 2 AT OX,OY: ROT= R: XDRAW 2 AT X,Y
146 OX = X:OY = Y:RO = R
147 IF (A > X) * (B = Y) * (SF = 0) THEN  GOTO 1000
150 IF PA > 0 AND PA / 13 < >  INT (PA / 13) THEN  ROT= 0: XDRAW
```

```
1  AT X,Y: POKE 768,96: POKE 769,3: CALL 770:VA(XA,YA) = - - PA:DT
   = DT - 1:S = S + 10: VTAB (21): HTAB (20): PRINT S: IF DT = 0 THEN
   GOTO 2000
152  IF SF = 1 THEN ROT= 0: RETURN
155  IF PA > 0 AND PA / 13 = INT (PA / 13) THEN ROT= 0: XDRAW 4 A
     T X,Y: FOR P = 10 STEP - 1: POKE 768,P: POKE 769,3: CALL 77
     0: NEXT P:VA(XA,YA) = - - PA: GOSUB 600
200  GH = VA((OA - 69) / 10,(OB - 24) / 10)
205  D = - D:DI = 0
207  IF (Y = B) THEN  GOTO 215
210  IF D < 0 OR (X = A) THEN  GOTO 255
215  IF (X > A) THEN  GOTO 240
220  IF GH / 7 = INT (GH / 7) THEN A = A - V: GOTO 320
230  GOTO 250
240  IF GN / 3 = INT (GH / 3) THEN A = A + V: GOTO 320
250  DI = DI + 1:D = - 1: IF DI = 2 THEN  GOTO 285
255  IF Y > B THEN  GOTO 270
260  IF GH / 2 = INT (GH / 2) THEN B = B - V: GOTO 320
265  GOTO 275
270  IF GH / 5 = INT (GH / 5) THEN B = B + V: GOTO 320
275  DI = DI + 1:D = 1: IF DI = 2 THEN  GOTO 285
280  GOTO 215
285  IF (X - A) * SGN (X - A) > (Y - B) * SGN (Y - B) THEN  GOTO
     300
290  IF GH / 7 = INT (GH / 7) THEN A = A - V:D = 1: GOTO 320
295  A = A + V:D = 1: GOTO 320
300  IF GH / 2 = INT (GH / 2) THEN B = B - V:D = - 1: GOTO 320
305  B = B + V:D = - 1
320  IF A > 209 THEN A = 69
323  IF A < 69 THEN A = 209
325  ROT= 0: XDRAW 3 AT OA,OB: XDRAW 3 AT A,B: IF (A = X) * (B = Y)
     THEN  GOTO 1000
330  OA = A:OB = B
400  NEXT P
600  SF = 1: ROT= 0: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDRAW 3
     AT 149,145: XDRAW 2 AT 129,145: XDRAW 3 AT 139,145: XDRAW 2 AT 1
     49,145
610  FOR Z = 1 TO 15
620  GOSUB 110: IF (X = A) * (Y = B) THEN  GOSUB 800: GOTO 700
630  P = INT ( RND (1) * 3)
635  GH = VA((OA - 69) / 10,(OB - 24) / 10)
640  IF P = 2 AND GH / 5 = INT (GH / 5) THEN B = B + V
650  IF P = 0 AND GH / 2 = INT (GH / 2) THEN B = B - V
660  IF P = 3 AND GH / 7 = INT (GH / 7) THEN A = A - V: IF A < 69
     THEN A = 209
670  IF P = 1 AND GH / 3 = INT (GH / 3) THEN A = A + V: IF A > 209
     THEN A = 69
680  ROT= 0: XDRAW 3 AT OA,OB: XDRAW 3 AT A,B:OA = A:OB = B
690  IF (A = X) * (Y = B) THEN  GOSUB 800
700  NEXT Z
710  SF = 0: ROT= 0: XDRAW 3 AT 129,145: XDRAW 3 AT 139,145: XDRAW 2
     AT 149,145: XDRAW 3 AT 129,145: XDRAW 2 AT 139,145: XDRAW 3 AT 1
     49,145
715  FOR P = 1 TO 15:Z = PEEK ( - 16336): NEXT P
720  RETURN
800  XDRAW 3 AT A,B:A = 139:B = 64:OA = A:OB = B: FOR P = 1 TO 5: P
     RINT CHR$ (7);: NEXT P:Z = 15: XDRAW 3 AT OA,OB:S = S + 100: VTA
     B (21): HTAB (20): PRINT S: RETURN
1000 ROT= R: XDRAW 2 AT X,Y: SCALE= 2: FOR R = 0 TO 128 STEP B: RO
     T= R: XDRAW 3 AT X,Y:D = PEEK ( - 16336): NEXT R: POKE - 16368,
     0: HOME : VTAB (21): HTAB (15): PRINT "SCORE = "S
1005 XDRAW 2 AT X,Y: ROT= 0: SCALE= 1: XDRAW 3 AT A,B: XDRAW 2 AT
```

➤

43

```
L * 10 + 119,10:L = L - 1: IF L > 0 THEN 35
1010 PRINT "DO YOU WANT ANOTHER GAME?"; FOR P = 1 TO 500: NEXT P
     : POKE - 16368,0: GET Q$: IF Q$ = "Y" THEN CLEAR : DIM VA(14,11
     ):L = 3: GOTO 1
1020 TEXT : HOME : END
1100 REM ******************************
2000 HOME : UTAB (22): FLASH : PRINT "PERFECT SCORE. WELL DONE
     "; FOR P = 1 TO 15: POKE 768,16 - P: POKE 769,6: CALL
     770: NEXT P: RESTORE : IF SF = 1 THEN POP
2005 SF = 0: GOTO 1
3000 TEXT : HOME
3010 PRINT "**********************************";
3020 PRINT "*"; FLASH : PRINT "                PACMAN
     "; NORMAL : PRINT "*";
3025 PRINT "*"; FLASH : PRINT "             BY NEIL FORSYTH
     "; NORMAL : PRINT "*";
3030 PRINT "**********************************";
3040 PRINT : PRINT "SINCE THE GAME IS WELL KNOWN HERE ARE   SIMPLE
     INSTRUCTIONS"
3050 PRINT
3060 PRINT "    KEY                ACTION"
3070 PRINT "    ---                ------"
3080 PRINT "    I                  UP"
3090 PRINT "    J                  LEFT"
3100 PRINT "    K                  RIGHT"
3110 PRINT "    M                  DOWN"
3120 PRINT "  OTHER KEYS           STOP"
3130 PRINT "  LARGE DOTS ARE ENERGIZERS."
3135 PRINT "  GHOST VULNERABILITY IS INDICATED AT THE SCREE
     N BOTTOM BY TWO PACMEN WITH GHOST  IN THE MIDDLE."
3140 PRINT "  GHOST VULNERABILITY IS INDICATED AT THE SCREE
     N BOTTOM BY TWO PACMEN WITH GHOST  IN THE MIDDLE."
3150 PRINT : PRINT : FLASH : PRINT "HIT ANY KEY FOR SCREEN SET UP
     "; NORMAL : GET ZZ$: RETURN
5000 HGR
5002 FOR Y = 0 TO 11
5005 FOR X = 0 TO 14
5010 A = VA(X,Y)
5015 K = 69 + X * 10:V = 24 + Y * 10
5020 HCOLOR= 7
5050 IF A / 2 < > INT (A / 2) THEN HPLOT K - 5,V - 5 TO K + 5,V
     - 5
5055 IF A / 3 < > INT (A / 3) THEN HPLOT K + 5,V - 5 TO K + 5,V
     + 5
5060 IF A / 5 < > INT (A / 5) THEN HPLOT K - 5,V + 5 TO K + 5,V
     + 5
5065 IF A / 7 < > INT (A / 7) THEN HPLOT K - 5,V - 5 TO K - 5,V
     + 5
5067 IF A > 0 AND A / 13 = INT (A / 13) THEN XDRAW 4 AT K,V: GOT
     O 5400
5070 IF A > 0 THEN XDRAW 1 AT K,V:DT = DT + 1
5400 NEXT X
5410 NEXT Y
5420 HPLOT 0,0 TO 64,19: HPLOT 279,0 TO 214,19: HPLOT 0,159 TO 64,
     139: HPLOT 279,159 TO 214,139
5500 RETURN
6000 FOR X = 770 TO 792
6010 READ Y
6020 POKE X,Y
6030 NEXT X
6040 DATA    173,48,192,136,208,5,206,1,3,240,9,202,208,245,174,0,
     3,76,2,3,96,0,0
6050 RETURN
10000 HGR2 : POKE 232,16: POKE 233,64
```

44

```
10005   TEXT
10010   SCALE= 1: ROT= 0
10020   FOR X = 16400 TO 16460
10030   READ Y
10040   POKE X,Y
10050   NEXT X
10055   RETURN
10060   DATA   4,0,10,0,16,0,31,0,51,0
10070   DATA   42,36,63,54,21,0
10080   DATA   18,27,39,36,44,44,9,49,53,54,62,62,63,39,0
10090   DATA   46,30,46,9,36,39,37,39,39,63,46,62,35,23,46,21,63,54,6
10100   DATA   53,30,60,60,12,37,21,21,6,0
20000   DATA   15,21,105,21,105,21,35,0,15,21,105,21,105,21,35
20010   DATA   10,15,42,35,105,6,35,30,273,70,15,14,15,42,35,10
20020   DATA   30,9,10,0,30,21,210,70,0,30,210,21,70,0,390,70
20030   DATA   10,6,105,14,15,14,30,21,70,6,35,6,105,14,10
20040   DATA   6,35,30,21,210,21,-210,-21,-210,21,210,21,70,15,14
20050   DATA   10,6,105,21,210,21,210,21,-70,0- 30,21,210,21,210,210,-21
20060   DATA   -21,210,210,21,210,21,-70,- 6,- 10,15,14,15,14,15,70,6,35
20070   DATA   15,14,30,35,6,35,- 6,- 10,15,42,105,42,105,21,210,21,70,6,105,70
20080   DATA   30,105,14,30,210,21,70,0,30,105,70,6,35,30,210,70,10
20090   DATA   10,21,210,21,70,15,14,30,105,70,6,35,30,42,70,0
20100   DATA   30,70,0,30,14,195,14,-10,6,455,6,70,0,30,70
20110   DATA   10,6,105,14,15,14,15,42,35,6,35,6,105,14,10
20120   DATA   6,21,42,21,42,21,14,0,6,21,42,21,42,21,42,21,14
```

VICTORIAN SEWERS

Chaos in the city as the ancient sewers start to collapse. Can you rebuild the city before the city slips into a giant hole in the ground?

Your job is to keep the traffic flowing around the city's gradually eroding road system.

This program is in TI Basic for a 99/4A console with no additions. It will run in Extended Basic, and also if you have the 32K expansion memory. It will run faster in Extended Basic than in TI basic.

This program uses several tricks you may find useful. The play board is set up with PRINT statements — the fastest way of doing this. The characters (the UNDERLINE is used here) are defined.

Note the use of POS in lines 1660 and 690 — the ancient way of reacting to a CALL KEY input. If the key pressed does not appear in the first string then the pro-

gram will goto/gosub the first line transfer, or the POS function will return nil.

Although TI Basic does not support AND and OR, the AREused in this program, in lines 980 (* used for AND) and in line 1270 (+ used for OR) — also several other lines. Note the expressions are placed in brackets (as here).

For greater speed the routines you plan are stored in a two dimensional array RT(H,M) which is read back to delete a route which suffers from a road collapse.

Conversion:
Pretty easy. The screen is composed of 24 rows of 32 characters. The PRINT lines start in column 3, and as they all start with a space, the first PRINTed is in column 4.

CALL NCHAR is in the format: CALL NCHAR (ROW, COLUMN, ASCII. No of times)

CALL GCHAR is in the for-

mat: CALL GCHAR (ROW, COLUMN, VARIABLE) in which the variable takes the ASCII code of the character at that position.

The characters take the codes given in lines 2290-2340 and are all coloured blocks except the player (PLY) who is an 'R'.

Owners of machines with memory mapped screen

should recognise the formula in lines 1870 (encryption) and f400-1410 (decoding) — this program does not look at column 32 so a slight approximation has been used.

For machines without the POS function, you will need to test the key pressed and GOTO/GOSUB as appropriate.

BY STEPHEN SHAW

RUNS ON A TEXAS TI 99/4a

IN 4K

```
10  REM
20  REM   SETTING UP A CAPI
30  REM   ... CE UNDERLINE :
40  REM
100 DEF   I=RND-6
110 DEF   V=RND-12
120 DEF   F1=RND-290+410
130 DEF   F=RND-29+110
140 DEF   TH=RND-500+300
150 DIM   PT(z,70)
160 DEF   PX=RND-100+4+10
170 DEF   J=30000
180 GOSUB 1900
190 CALL  CLEAR
200 PRINT
210 PRINT " _____
220 PRINT " _____
230 PRINT " _____
```

(45)

```
240 PRINT "_ _ _ _ _
    "
250 PRINT "_ _ _ _ _ _
    "
260 PRINT "_ _
    "
270 PRINT "_ _
    "
290 PRINT "_ _ _____
    "
300 PRINT "_ _____
    "
310 PRINT "_ _
    "
320 PRINT "_ _
    "
330 PRINT "_ _
    "
340 PRINT "_ _ _
    "
350 PRINT "_ _
    "
360 PRINT "_ _____
    "
370 PRINT "_ _
    "
380 PRINT "_ _ _____
    "
390 PRINT "_ _ _
    "
400 PRINT "_ ____ _
    "
410 PRINT
420 PRINT
430 CALL HCHAR(11,1,UTP,30)
440 CALL HCHAR(12,1,LTR,30)
450 REM  POND MAP DRAWN
460 CALL COLOR(1,4,4)
470 CALL HCHAR(11,3,HOLE,6)
480 CALL HCHAR(12,3,HOLE,6)
490 CALL HCHAR(11,4,RD,9)
500 CALL HCHAR(12,4,RD,9)
510 CALL HCHAR(11,19,RD,9)
520 CALL HCHAR(12,19,RD,9)
530 R=1
540 ROW=11
550 COL=4
560 GOSUB 1520
570 R=2
580 ROW=12
590 COL=4
600 GOSUB 1520
610 CALL GCHAR(11,9,CDE)
620 REM  CONTROL SECTION
630 CALL KEY(0,F,ST)
640 IF RND<.99 THEN 660
650 CALL SOUND(TM,F1,V1,F2,V2
```

```
660   CALL HCHAR(PR,PC,FL)
670   CALL HCHAR(PR,PC,CDE)
680 IF ST<1 THEN 630
690 ON POS("EDPAR",HR$(F)+1)+1
    GOSUB 720,750,780,850,910,980
700 GOSUB 1190
710 GOTO 630
720 RETURN
730 CALL GCHAR(P-1,PC,CD)
740 IF CD=32 THEN 730
750 PR=PR-1
760 CALL HCHAR(RR,RC,PLY)
770 CDE=CD
780 RETURN
790 CALL GCHAR(PR,PC-1,CD)
800 IF CD=22 THEN 780
810 PC=RC-1
820 CALL HCHAR(PR,RC,PLY)
830 CDE=CD
840 RETURN
850 CALL GCHAR(PR,RC+1,CD)
860 IF CD=22 THEN 840
870 PC=RC+1
880 CALL HCHAR(PR,RC,PLY)
890 CDE=CD
900 RETURN
910 CALL GCHAR(PR+1,PC,CD)
920 IF CD=32 THEN 900
930 PR=RR+1
940 CALL HCHAR(PR,PC,PLY)
950 CDE=CD
960 RETURN
970 REM  PEPAIP SECTION
980 IF (CDE=HOLE)+(CDE=REP)THE
    N 1040
990 IF CDE=HOLE THEN 1000 ELSE
    1050
1000 CDE=REP
1010 FOR T=1 TO 10
1020 CALL SOUND(-199,I,30,S,30,F
     R,30+-4,0)
1030 NEXT T
1040 RETURN
1050 IF CDE=REP THEN 1060 ELSE
     1040
1060 CDE=PD
1070 IF (PR=11)+(PP=12)THEN 1080
     ELSE 1040
1080 CALL HCHAR(PR,PC,CDE)
1090 FOR P=11 TO 12
1100 FOR C=3 TO 29
1110 CALL GCHAR(R,C,TEST)
1120 IF (TEST=PLY)+(TEST=PD)*(
     TEST=UTP)*(TEST=LTR)THEN 1170
1130 NEXT C
1140 NEXT P
1150 REM  WINNER***
1160 GOTO 2430
1170 RETURN
1180 REM  DAMAGE
```

46

```
1190 =INT(RND-22+5
1200 R=INT(RND*20)+2
1210 CALL GCHAR(R,C,CD)
1220 IF (RR=R)*(RC=C)THEN 720
1230 IF (CD>RD)*(CD<>UTP)*(CD<LTR)THEN 720
1240 IF RND>LEVEL THEN 720
1250 CALL HCHAR(R,C,HOLE)
1260 CALL SOUND(400,-8,0)
1270 IF (CD=UTR)+(CD=LTP) THEN 12
80
1280 RETURN
1290 FOR T2=1 TO 4
1300 FOR T=1 TO 5
1310 CALL SOUND(-99,500+T*20,T*4
)
1320 NEXT T
1330 CALL SOUND(-99,250,12,266,1
0)
1340 NEXT T2
1350 IF CD=LTR THEN 1380
1360 A=1
1370 GOTO 1390
1380 A=2
1390 FOR T=1 TO NUMB(A)
1400 ROW=INT(RT(A,T)/32)
1410 COL=(RT(A,T)-32-ROW)*32
1420 CALL GCHAR(ROW,COL,CD)
1430 IF (CD<LTR)*(CD<>UTR)THEN
1450
1440 NEXT T
1450 ROW=INT(RT(A,1)/32)
1460 COL=(RT(A,1)-32-ROW)*32
1470 CALL HCHAR(ROW,COL,PLY)
1490 GOSUB 1520
1500 RETURN
1510 REM  ROUTE TRAFFIC
1520 NUMB(A)=0
1530 IF A=1 THEN 1570
1540 IF A>2 THEN 1580
1550 TP=LTR
1560 GOTO 1580
1570 TP=UTR
1580 GOTO 1870
1590 CALL KEY(0,K,ST)
1600 CALL HCHAR(ROW,COL,PLY)
1610 CALL HCHAR(ROW,COL,TP)
1620 IF RND>.99 THEN 1640
1630 CALL SOUND(TM*F1,V1,F2,V2)
1640 IF ST<1 THEN 1590
1650 ON POS("ESIX",CHR$(K),1)+1
GOTO 1590,1670,1720,1770
1660
1670 CALL HCHAR(ROW-1,COL,CD)
1680 IF CD<>RD THEN 1590
1690 ROW=ROW-1
1700 CALL HCHAR(ROW,COL,TP)
1710 GOTO 1870
1720 CALL HCHAR(ROW,COL-1,CD)
1730 IF CD<>RD THEN 1590
1740 COL=COL-1
1750 CALL HCHAR(ROW,COL,TP)
1760 GOTO 1870
1770 CALL HCHAR(ROW+1,COL,CD)
1780 IF CD<>RD THEN 1590
1790 ROW=ROW+1
1800 CALL HCHAR(ROW,COL,TP)
1810 GOTO 1870
1820 CALL HCHAR(ROW,COL+1,CD)
1830 IF CD<>RD THEN 1590
1840 COL=COL+1
1850 CALL HCHAR(ROW,COL,TP)
1860 GOTO 1870
1870 TOT=ROW*32+COL
1880 NUMB(A)=NUMB(A)+1
1890 RT(A,NUMB(A))=TOT
1900 IF (ROW=10+A)*(COL=27)THEN
1920
1910 GOTO 1590
1920 RETURN
1930 CALL CLEAR
1940 PRINT "VICTORIAN SEWERS":::"
(C)1982 STEPHEN SHAW":::
1950 PRINT "YOU MUST KEEP THE CI
TY":"TRAFFIC FLOWING,":"DESPITE
THE FREQUENT.
1960 PRINT "COLLAPSE OF SECTIONS
OF ROADS":"THE OLD SEWERS AT LAS
T GIVE IN TO TIME."
1970 PRINT :::"PRESS ENTER TO CO
NTINUE."
1980 INPUT X$
1990 CALL CLEAR
2000 PRINT "A MAIN ROUTE RUNS AC
ROSS THE CENTRE OF THE SCREEN,":
"A LARGE COLLAPSE TAKES PLACE"
2010 PRINT "FIRST YOU MUST REROU
TE EACH OF TWO LANES OF TRAFFIC"
:"USING THE ARROW KEYS:":" E,S
,D,& X."
2020 PRINT "YOUR ROUTE MUST NOT
CROSS ANY OTHER ROUTE NOR ANY":
"DAMAGED SECTIONS."
2030 PRINT "PLAN YOUR ROUTE BEFO
RE YOU BEGIN AS CORRECTIONS CAN
NOT BE MADE...":::
2040 PRINT "PRESS ENTER TO CONTI
NUE..."
2050 INPUT A$
2060 CALL CLEAR
2070 PRINT "WHEN TWO LANES OF TR
AFFIC HAVE BEEN ROUTED YOU ENT
ER ANOTHER SECTION OF PLAY."
2080 PRINT "YOU MUST MOVE YOUR R
EPAIR GANG (R) USING THE CURSO
R KEYS AND OVER DAMAGED
2090 PRINT "ROAD, REPAIR IT BY PR
ESSING KEY 'R'."
```

Victorian Sewers

```
      PRINT "IT TAKES TO ENTIRE
TO     REPAIR EACH SECTION."
2110 PRINT "WHILE YOU ARE DOING
THIS   OTHER SECTIONS COLLAPSE
  ":"IF TRAFFIC FLOW IS HALTED"
2120 PRINT "YOU MUST REROUTE THE
   TRAFFIC BEFORE CONTINUING THE RE
PAIR"
2130 PRINT "YOU WIN IF YOU CAN RE
STORE   THE MAIN ROAD."
2140 PRINT "YOU LOSE IF YOU CANN
OT   RESTORE THE TRAFFIC FLOW
WHEN   IT IS DISRUPTED. ";
2150 PRINT "PRESS ENTER TO CONTI
NUE"
2160 INPUT A$
2170 CALL CLEAR
2180 PRINT "ENTER DIFFICULTY LEV
EL": 1.EASY":"2.MEDIOCRE":"3.AV
ERAGE":"4.HARD":"5.VERY HARD": "
  INSANE"
2190 PRINT ::
2200 INPUT LEVEL
2210 IF LEVEL<0 THEN 2180
2220 IF LEVEL>6 THEN 2180
2230 LEVEL=LEVEL-7
2240 CALL CHAR(11F,"FF818181818
31FF"
2250 CALL COLOR(11,10,15)
2260 CALL COLOR(8,15,15)
2270 CALL COLOR(10,16,16)
```

```
2290 RANDOMIZE
2300 HOLE=30
2310 REP=112
2320 RD=95
2320 UTP=104
2350 LTP=105
2340 PLY=82
2350 PR=11
2360 ROW=11
2370 COL=9
2380 RC=9
2390 CDE=RD
2400 PT(1,1)=13.32+4
2410 PT(2,1)=12.32+4
2420 RETURN
2430 REM   *** WINNER ***
2440 CALL SOUND(600,300,6
2450 PRINT "WELL DONE YOU MADE I
T!"
2460 CALL COLOR(8,2,1)
2470 PRINT "TO PLAY AGAIN CLEAR
AND RE- RUN PROGRAM"
2480 GOTO 2480
```